KPMG

Evaluation of Business Services Provided to Business Customers through the Commonwealth Workforce Development System

March 31, 2023

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Contents

Insert proposal disclaimer

Introduction

KPMG was contracted by the Pennsylvania Departments of Labor & Industry (L&I) and Community & Economic Development (DCED) (hereafter known as the "Departments") to conduct an independent evaluation of business services provided by the public workforce system to employers in the Commonwealth. These services are designed to fulfill one of the major goals of the Workforce Innovation and Opportunity Act (WIOA): to improve services to employers and to promote work-based training with an emphasis on working with employers to provide opportunities to enhance their hiring, training, and retraining practices to promote economic and workforce growth.

In recent years, the COVID-19 pandemic and national economic conditions have presented Pennsylvania's public workforce system, labor force, and its business community with new and existing challenges. To better understand these challenges and ensure that services match existing needs, KPMG was tasked by the Departments with conducting a mixed methods evaluation of business services provided under the public workforce system. This evaluation was given the goal of determining whether the Workforce and Economic Development (WED) system is effectively serving employers and if the system infrastructure is sufficient to support that service delivery.

KPMG's *Final Combined Report* presents the results of the business services evaluation over the period April 27, 2022 through March 31, 2023. Evaluation activities documented in this report include preparation of an Evaluation Design interviews with Workforce Development Area leadership and local Business Services Teams; the methodology, sample selection, and results from a survey of businesses; data collected and analyzed from CWIA's Unemployment Compensation database and the Commonwealth Workforce Development System's (CWDS) service records for the time period November 2020 through November 2022; data gathered from multiple sources to support the evaluation, including virtual interviews with all 22 Workforce Development Areas; and review of program documentation and business services practices in the Commonwealth and 18 other states with a focus on those that are economically or regionally comparable to Pennsylvania.

This report is divided into five sections. First, a description of WED business service provision. Second, a summary of the evaluation methodology.[1] Each of the last three sections covers a component of the evaluation. These components are: (1) Research review of national best and current practices; (2) Qualitative study with both virtual interviews and a survey; and (3) Quantitative study with business service performance metrics and an economic forecast by industry and geographic region.

Research Questions

Our evaluation of the Business Services consists of three components:

- Qualitative Study

[1] Additional detail on the evaluation methodology is given in the Evaluation Methodology & Tool report deliverable prepared by KPMG and approved by the Departments on May 20, 2022.

- Quantitative Study
- Research Review

The qualitative study focuses on obtaining an understanding of the views of service providers and customers on business services and challenges they face through the use of interviews with Business Services Teams and WDA leadership and an online survey of businesses. The quantitative study documents the USDOL's recommended business services metrics for each Workforce Development Area in the most recent 12-month period available in the data and also supports the qualitative study by applying best statistical practices to the selection of a sample of businesses for the survey. Lastly, the research review focuses on identifying promising developments and best practices across the Commonwealth and nation in the delivery of business services.

The overarching goal of the evaluation is to answer the below research questions. To the extent possible, the questions are intended to be addressed by considering their impacts at the state level, regionally and locally, and for the twelve industry clusters identified for Pennsylvania workforce strategies.[2]

A. What are the existing services being offered throughout the commonwealth to businesses by the public WED systems?
B. Are the services currently being offered by the departments through the public WED systems sufficient to facilitate a successful matriculation of potential employees from secondary education, post-secondary education, or the broader labor pool to meet the staffing needs of the business community to ensure economic development and prosperity?
C. What services to businesses are effective and why?
D. Are current services offered to businesses no longer impactful and why?
E. Are any services to businesses missing from the workforce system and why?
F. What barriers do businesses face when accessing services through the workforce system?
G. Do current services align with the three federal indicators used to evaluate effectiveness?
H. What improvements could be made to the current structure based on the lessons learned from the pandemic and post-pandemic needs of the business community that could enhance service delivery?
I. How can the workforce system become more flexible and encourage innovation when delivering services to the business community?
   - What are the needs of the businesses as they relate to flexibility and innovation?
J. What outcomes should be measured to ensure alignment with commonwealth business services effectiveness indicators?
K. How can Pennsylvania's business service delivery model be enhanced by national best practices, systems, or models?
L. What additional policy or legislative actions are needed to ensure that the workforce system can implement and deliver these services over the next decade?

[2] See the CWIA product, Pennsylvania's Industry Clusters, at: https://www.workstats.dli.pa.gov/Products/PAIndustryClusters/Pages/default.aspx

M. Do the departments have sufficient physical, staffing, technological, and other available infrastructure to meet the workforce needs of the commonwealth through the next decade?

Executive Summary

This report describes a program evaluation of business services across the 22 Workforce Development Areas (WDAs) of the Commonwealth. The evaluation included components for a research review of best and promising practices, qualitative study of business services in the Commonwealth, and a quantitative study of business services data that includes a five-year forecast of industry growth trends. Each evaluation component has its methodology and findings described separately. In this executive summary, findings from the evaluation are grouped under headings for each of the key themes uncovered.

- **Theme 1: Coordination between groups providing business services is critical.**

Staff across the Commonwealth reported great differences in the frequency and level of coordination and communication between groups involved in business services, which include the BST, OVR, and Veterans' Affairs, as well as other potential partner agencies. In some areas, BSTs have established set monthly or quarterly schedules for meetings with their service partners. In other areas, there is no predetermined schedule and meetings to facilitate the coordination of service delivery and are handled on an ad hoc manner.

Recommendation: We recommend creating opportunities for organic knowledge translation and tangible braiding and leveraging of resources. In other words, creating an environment that improves communication and collaboration will result in enhanced coordination of services and supports for a business by creating an environment where multiple service providers and stakeholders can come together (face-to-face or virtually) in support of a business -- through the process of service delivery -- what other agencies provide and how they deliver services. Additional strategies the commonwealth should consider bolstering coordination and service delivery challenges faced by the workforce system. 1) Encourage ***shared learning***, 2) Create opportunities for ***collaborative activities*** such as (joint performance reviews, joint local plan development, 3) ***Braid service delivery*** to increase their effectiveness, and 4) ***Shared resources*** to allow all stakeholders to take advantage of the WIOA partner framework and to the extent possible, scheduling with service partners should involve set schedules to maintain consistent and reliable information flow between all parties, and to enable agile and well-coordinated responses to emerging needs.

Involvement of the Chamber of Commerce. Some regions report their relationship with the local Chamber of Commerce as a core component of their service delivery strategy, while others did have or did not mention such a relationship when prompted for their partnerships. This may be because they do have a relationship but do not necessarily perceive it to be critical. The Chamber of Commerce's Talent Pipeline Management initiative is currently active across 40 states with a mission to develop sustainable talent pipelines and apply solutions to employers' most pressing difficulties by having employers work together using internal, proprietary data to identify shared pain points. With this initiative, employers were able to fill jobs with qualified

candidates and reduced the costs of talent recruitment and retention. In Pennsylvania, Erie Regional Chamber and Growth Partnership is an organization in the TPM network.
Recommendation: A strong relationship with the Chamber has the potential to improve business service usage by small employers, which is an underserved population as seen by the low business service market penetration rate across the state. Pennsylvania can work towards expanding access to the TPM initiative as well.

Information sharing outside CWDS. WDAs have adopted several methods for tracking and sharing data that is not currently captured in CWDS. Currently, areas utilize share drives or collaborative Excel files.
Recommendation: There is no right or wrong approach except isolation, we recommend establishing a working group to review how the data stored inside and outside of CWDS can accessed by stakeholders in the workforce system. The workgroup would also determine what protocols and controls to establish to prevent data spillage or misuse. be reviewed to determine if modifications could be made to CWDS to enable these external sources to be uploaded. For data that are found unsuitable for upload to CWDS in the short term, we recommend that, as a temporary solution, a standardized reporting structure be developed to facilitate easier upload of the data at a future date when CWDS might be able to include it. The Departments leaders should also promote greater transparency and accountability of their resources considering tightening budgets, access to reliable and accurate data is important. Access to more information in a coordinated way, so that connections between employers and the availability and skills of the workforce are more readily understood will greatly benefit the workforce system. The commonwealth and all stakeholders will benefit from these connections, including the ability to monitor how economic shifts have affected the workforce over time, adapt training investments and programs to align with projected employer demand, and inform jobseekers about opportunities and job prospects in particular employer.
Service delivery intensity. Analysis of CWDS service record data showed evidence that WDAs classified as suburban based on census data (Berks, Lackawanna, South Central, and Westmoreland-Fayette) consistently produce moderately higher numbers of businesses served and a higher rate of repeat business customers. The raw number of businesses served in WDAs classified as urban and rural WDAs were comparable, but due to greater business activity in urban areas these WDAs had the lowest market penetration rates. A separate analysis was conducted using a modified version of market penetration rate that accounts for the number of employees at businesses served. Under this modified metric, all WDAs had market penetration rates between 88% and 95%.

Service delivery intensity. Analysis of CWDS service record data showed evidence that WDAs classified as suburban based on census data (Berks, Lackawanna, South Central, and Westmoreland-Fayette) consistently produce moderately higher numbers of businesses served and a higher rate of repeat business customers. The raw number of businesses served in WDAs classified as urban and rural WDAs were comparable, but due to greater business activity in urban areas these WDAs had the lowest market penetration rates. A separate analysis was conducted using a modified version of market penetration rate that accounts for the number of

employees at businesses served. Under this modified metric, all WDAs had market penetration rates between 88% and 95%.
Recommendations and Findings: These results suggest that current resource levels may be a limiting factor on the volume of services that can be provided. The four suburban WDAs may have identified practices that increase service efficiency under this limitation. The more consistent performance between regions using modified market penetration rate suggests that the support urban WDAs provide to large employers may be more time-intensive than what is required to support small or medium-sized employers. This would explain their lower market penetration rate due to having less time to serve many distinct employers due to more time-intensive support for larger employers.

Impact of unfilled roles on BSTs. Increased competition for skilled workers, burnout resulting from customer demands during COVID, and hybrid/remote workplace obstacles and a competitive hiring market have placed a strain on government agencies such LWDAs trying to retain staff. Service delivery coordination can be heavily impacted by unfilled roles on a BST and vacancies within BTS positions, has a direct impact on the employer community they serve. This can result from turnover, insufficient positions on the team relative to employer demand, or due to structural or resource constraints. BSTs have indicated that business customers dislike turnover as they have to rebuild their relationship with the new staff member. High turnover can also provide strain on BSTs themselves, as staff have reported a steep learning curve for proficient CWDS users which can require considerable retraining. It was also reported by BSTs that unfilled roles have imposed limitations on their ability to conduct outreach initiatives. WDAs may have to make difficult choices in which promising initiatives they undertake due to these limitations. This also raises the potential appeal and value of initiatives that leverage the knowledge, experience, and data of employers, their networks, and related organizations.
Recommendation: When seeking to fill vacant positions BTS is often competing with the private sector for the same candidates and with a tight job market, applicants have little patience for overly burdensome and lengthy hiring processes. BTS should consider reviewing their hiring processes and make necessary changes that will allow for more efficiency and streamlined hiring process. Two Workforce Development Areas have reported methods to address either turnover or ways to improve training and service delivery for new team members. Northern Tier WDA reports success in reducing the time required to train staff through its implementation of a Business Toolkit. The toolkit provides structure and guidelines to staff during meetings with employers, site visitations, and consultations. It also includes resources that staff can leave behind at employer sites to educate them on the role of PA CareerLink and the services that are available. Luzerne-Schuylkill WDA has recently adopted a hybrid working schedule and has attributed this as one of the reasons that they have shown low staff turnover.

Large, rural WDAs face additional challenges. BSTs report that the size of the area they support can have negative impacts on the quality and extent of their communication with businesses and job seekers. Many rural WDAs also reported difficulties with conducting virtual services because of many customers not having ready access to a computer or high-speed internet. As such, virtual initiatives that are successful in more urban areas may be difficult to adopt in these rural areas.

Recommendation: Due to the rural nature of the state, lack reliable broadband internet access, employers outside the metropolitan areas can go under-served. Providing kiosk in these areas will allow employers direct access to service. For example, kiosks vendors such as Ike Smart City who offer kiosks partnerships at no cost with the option to promote local arts and culture to citizens. Another solution that is worth considering for broader adoption is CareerLink Studio, a computer lab workspace offered by Southwest Corner WDA, which allows job seekers to conduct interviews with employers in a dedicated environment. We also recommend establishing a working group that afford rural workforce development areas the opportunity to share their challenges and best practices with urban areas WDAs.

- **Theme 2: CWDS is a valuable tool, but its complexity has posed challenges.**

Key findings related to the implementation of the **Commonwealth Workforce Development System** (CWDS) revealed opportunities for improvement related to the following key themes: User Interface Design, Usage Practices, Data Integrity, and Data Integration.

User interface design. Feedback is consistent across the various local workforce development areas in revealing that there is considerable opportunity to enhance the user experience for members of the PA CareerLink business service teams (BSTs) and employers alike. Foremost, the user-interface design is described as less than intuitive and user-friendly. Despite the accessibility and generally agreed upon quality of training materials provided to the PA CareerLink BSTs, they express difficulties performing various actions within the system with an emphasis on the time-consuming nature of ad-hoc reporting.

Usage practices. Staff have reported that employers can feel discouraged from engaging with CWDS due to perceived challenges with the overall user experience. As a result, employers may limit or avoid use of the system with impacts on system registration rates, sharing of follow-up information concerning service outcomes, and the collection of employer labor market data. Staff themselves have experienced difficulties during the state's transition from legacy CWDS to CWDS 2.0, which has introduced unique challenges. The two systems are disparate in that information is not fluid between both versions of CWDS. This can require additional manual effort to reconcile and creates opportunity for human error. Lastly, while CWDS 2.0 is generally considered more intuitive and user-friendly than its predecessor by both employers and the PA CareerLink BSTs, there were features in Legacy that the BSTs would like to see incorporated to the newer version (e.g., sorting features). To overcome these challenges, some PA CareerLink BSTs have had success with informally dedicated a resource to handling less common use cases within CWDS, such as more advanced ad-hoc reporting. However, this may not be an immediate possibility for all PA CareerLink BSTs due to limited staffing and loss of institutional knowledge due to turnover.

Data Integrity. The data within CWDS may be susceptible to various integral challenges. For example, the PA CareerLink BSTs shared that duplicate employer profiles is a consistent challenge. This suggests that there may not be effective practices in place for verification of information. For instance, the KPMG team reviewed a data set of employer information from CWDS. The team observed that in a three-year period of CWDS service record data, 42,130 unique Federal Employer Identification Numbers (FEINs) were reported to have received

services but 16,080 were for FEINs that did not exist in the Unemployment Compensation data maintained by the Center for Workforce Information & Analysis. That is, there was a typo or other error during manual entry of the FEIN when the service record was created. It was also observed that many employers, including over half of employers that had recently received business services, were missing point of contact or other information fields. The contact data were maintained by the BSTs but were not being captured in the central databases used by the Departments. Improved functionality within CWDS for data validation in addition to complementary data practices for data validation (e.g., cross referencing the FEIN entered against a valid list during service tracking) could improve overall data integrity. Additionally, establishing more consistent usage practices across the various PA CareerLink BSTs could minimize data entry issues.

Data Integration. Improved data quality in CWDS has the potential to benefit downstream users of workforce data. We see an opportunity here for improved integration of CWDS data with existing data sources maintained by BSTs to enhance the data within CWDS for the benefit of the BSTs and other stakeholders within L&I. One such stakeholder is the Center for Workforce Information & Analysis (CWIA), who would benefit from improved handling of data within CWDS for use in its existing or in new data products for its customers.

- **Theme 3: Challenges with conducting outreach have driven innovation locally and nationally**

Key findings related to the ability and content of communications between service providers and business customers aligned to the following themes: employer misconceptions; resource and staffing limitations; addressing misconceptions through improved outreach techniques or strengthened relationships with employer groups; partial service centers; a variety of approaches for setting up public-private partnerships with business networks; and the use of targeted surveys.

Employer misconceptions. Many areas reported misconceptions from employers about who the system is meant to serve and what the range of services available are. Staff report that employers believe services are either only available to job seekers or that the job seekers offered to them would be unskilled, blue collar, and on unemployment. Other employers appear to be unaware that services are offered by the state at no cost.

Recommendation 1: To combat business services misconceptions, new outreach techniques have been developed. These include multi-channel marketing of services using the CareerLink website, site visits to employers, and hosting events with community partners. Some WDAs have experimented with outreach campaigns on content engagement platforms and social media (such as YouTube, Facebook, Instagram, and Twitter) to feature curated marketing, which varies from simple messaging to structured podcasts. As these initiatives rely on internet access, their effectiveness may depend upon the speed and quality of access given by local internet providers.

Recommendation 2: Misconceptions from employers can also be addressed by strengthening employer relationships. San Diego Workforce Partnership developed the Employer Research Matrix that contains all relevant information from employers regarding their hiring needs and

processes and is regularly updated. The tool has improved employer relationships; it allows staff to be more efficient and less burdensome to the business community by preventing staff from asking employers the same questions repeatedly. In Florida, the First Coast Workforce Development Board has hired business consultants to perform marketing outreach. If cost-efficient, the use of outside expertise in outreach and marketing may be effective and offer improved insight into business needs. Several BSTs in Pennsylvania send out recurring newsletters with service offering information to businesses that they have an established relationship with. These materials can also be printed out and left at job sites.

- **Theme 4: Industry Best Practices**

Partial service centers. A promising practice from First Coast Workforce Development Board in Florida enables a larger footprint across their area by setting up information kiosks and partial-service career centers. The partial service One-Stop Career Centers are housed in retail districts, and kiosks are placed in malls, public housing complexes, and community colleges. Pennsylvania's Lehigh County has a similar program that provides kiosks to local area high schools. Strategically placed kiosks can give businesses and the public information on service offerings, particularly in large regions with dispersed populations or in areas with customers who may have limitations on access to the internet or computers.

Industry cluster teams. Michigan has set up a system of Local Industry Cluster Teams to leverage the expertise of industry representatives. Each of these teams is composed of employer representatives from a single industry in addition to BST staff. Industry cluster teams jointly engage with the workforce system to identify talent demands and challenges within their industry. These teams provide input to statewide policy as well as technical assistance to support regional activity relevant to their industry.

Economic development corporations. The government and local businesses can create valuable partnerships. JobsOhio is a state authorized nonprofit developed by seasoned professionals with private sector expertise and the statewide network of economic development partners. Programs and development-ready sites provided by the partnership help companies, entrepreneurs, and individuals build their businesses and career. Ohio also has the Business Resource Network, whose expansion successfully helped employers learn about the extensive services and resources that are available to them. This partnership improved outreach to employers in the network and service delivery to them. The Southwest Michigan Employer Resource Network Expansion Project is a public-private partnership that can deliver the necessary resources that employers could use to aid their workforce, including on-site success coaches, career coaching, and support for career advancement. Here, the employer network is directly involved in aspects of service delivery through the partnership. Employers reported value in networking with one another and working collaboratively across firms to identify retention challenges in the local community.

Targeted surveys. Targeted surveys of employers can allow for the local workforce development system to gather greater insight into employers' needs and objectives directly and adjust their services and service delivery accordingly, particularly in targeted industries. This is a

qualified recommendation, as it may be less effective if used widely. Surveys are likely to produce more actionable results when targeted to businesses within an industry, who have an existing relationship with one or more business services teams, but who are not actively involved in any established public-private partnerships. When appropriately used, targeted surveys also have potential benefits to implicitly educate respondents about workforce services and emerging priorities or challenges in service delivery through the nature of the questions asked and information solicited. A survey with a clear and narrow topic conveys to these businesses that it is a priority.

- **Theme 5: Promising approaches and challenges facing specific business services**

The final theme covers service-specific findings that have the potential to inform how those services are provided.

Job placement. Examples of job placement initiatives in other states can provide guidance on improving service delivery to employers. Ohio's TalentNEO provided employers with new tools to access talent. This skills-based hiring model provided employers with skills assessments that give estimates of a job seeker's current skill level; employers can decide if they would be a good fit or not. Credentialing initiatives, such as the Credential Engine in Indiana, Massachusetts, and Colorado, can also help ensure that employers are able to discover and confidently hire job seekers that have the requisite skill.

Job fairs. While general job fairs have the potential to draw in a large group of job seekers and employers, there tends to be a challenge to control the profile of job seekers that attend. As such, matching job seeker skills sets to employer needs in this kind of environment is considerably difficult. Targeted or industry-specific job fairs may be a better option. Though lower attendance may occur, the quality of matching job seeker to employer is greatly improved. Nontraditional job fair formats can also be considered. In Lancaster WDA, as an adaptation to the Covid-19 Pandemic, a drive through job fair was held. Employers provided information to contribute to a booklet of local businesses that were hiring. Job seekers were able to register in advance and drive up to the CareerLink within a certain time slot. Staff handed the booklet that advertised openings, along with a donation bag with offerings from employers, and were able to discuss CareerLink opportunities directly to the job seeker. Nontraditional job fair formats can help local areas experiment and adjust their approach to better suit their needs and resource levels. These types of fairs have the capability to aid BSTs that have limited resources, target industries, and overcome barriers to marginalized groups who may not be able to attend traditional fairs.

Innovations in tech use. Several initiatives in other states are worth highlighting for their use of technology and data management resources to improve service efficiency or outreach to businesses. The Talent Resource Navigator in Illinois is a no-cost, online one-stop shop that guides employers on where to find training related programs and funding. The Navigator's Talent Pipeline Assessment aligns resources based on the employer's self-assessment and notifies them when new, relevant resources have been added. Following Covid-19, Colorado developed Upskill Pikes Peak, a free online learning management that allows for employers,

employees, and job seekers to gain skills on popular computer programs and soft skills. Tri-County Colorado's Career Center established an online appointment system, where customers can self-schedule virtual or initial appointments.

Overview of WED Business Service Delivery

The purpose of the Workforce Innovation and Opportunity Act (WIOA) is to align employment, education, and training programs to strengthen the United States labor market. In order to accomplish this objective WIOA mandates six program components which need to be consistently offered by American Job Centers (AJCs): Youth Workforce Investment Activities, Adult and Dislocated Worker Employment and Training Activities, Adult Education and Literacy, Employment Services, and Vocational Rehabilitation. As defined in WIOA Section 3(13), the core program provision is derived from of the following legislation:

- WIOA Title I Subtitle B Chapters 2 and 3 (relating to Youth, Adult, and Dislocated Worker employment and training activities);
- WIOA Title II (relating to Adult Education and Literacy activities);
- WIOA Title III Wagner-Peyser Act Sections 1 through 13 (relating to employment services); and
- WIOA Title IV Rehabilitation Act of 1973 Title I (relating to Vocational Rehabilitation services)

WIOA, specifically Title III – Wagner-Peyser, treats employers with the same level of service and customer-oriented focus that is given to individual program participants. The programs provided to employers are meant to strengthen their labor force and businesses are given incentives such as subsidized wages for individuals enrolled and undergoing training. Catering to businesses is a mutual beneficial arrangement: companies receive skilled employees at a subsided rate while the commonwealth at large develops a higher-skilled, more productive workforce.

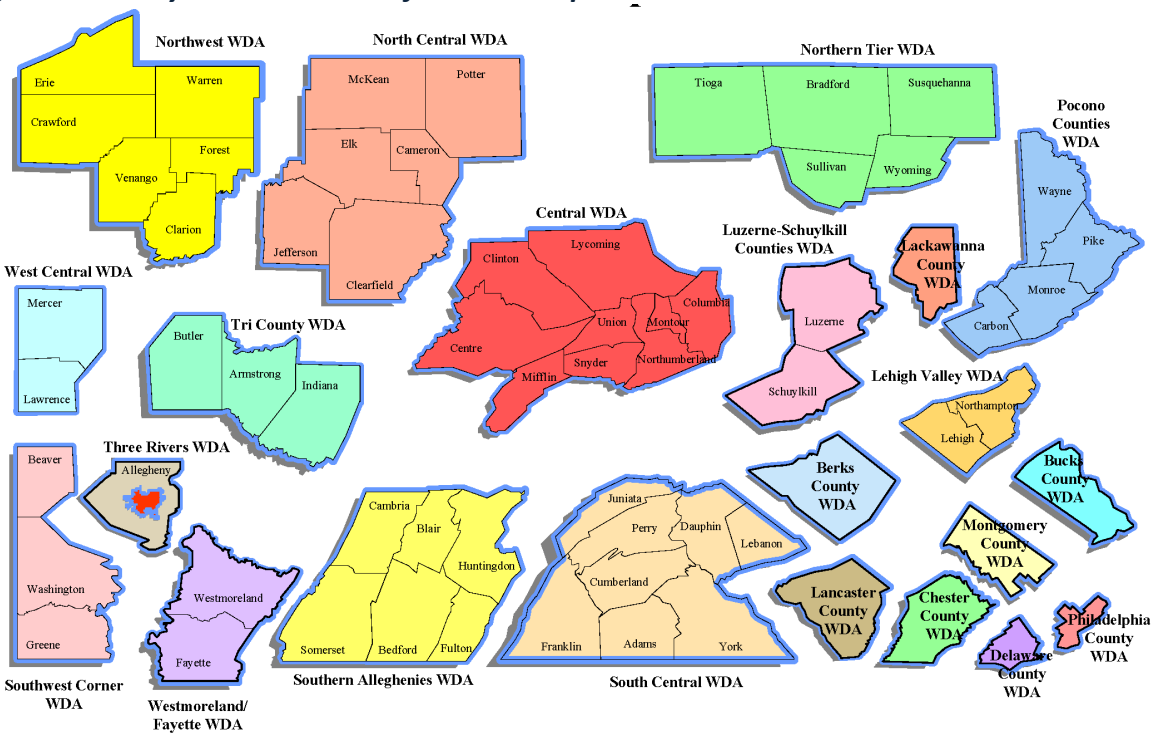
COVID-19 caused an economic disruption far greater than the Great Recession of 2008 and many businesses in the commonwealth face challenges as they attempt to remain competitive in today's increasingly global economy. The Department of Labor & Industry is the commonwealth’s governing body charged with overseeing Pennsylvania's workforce development system. The Department of Community & Economic Development has a mission to support programs for good stewardship and sustainable development across the Commonwealth, which includes providing strategic technical assistance, training initiatives, and financial resources to employers. In particular, DCED’s Center for Strategic Partnerships operates targeted programs for businesses.

Pennsylvania’s Governor designates local Workforce Development Areas (WDAs), each of which has a local workforce development board that is responsible for the oversight, planning, and evaluation of workforce services. Pennsylvania's local workforce development boards, or LWDBs, s operators are contracted individually by each LWDB and re independent from L&I but work closely with L&I' and other stakeholders to ensure Pennsylvania workforce needs are met. The network of 22 LWDBs– each of which provides workforce development services to either a county or a group of counties. Each LWDB directs federal, state, and local funding to workforce development programs, develops workforce and regional strategies specific to their region, and

work with both L&I and regional stakeholders (including businesses) to ensure services are delivered. LWDBs are responsible for providing oversight and coordination of the workforce services provided in their region and the overall operation of the PA CareerLink® offices in their area.

The WDAs offer many resources and services to businesses to help meet their workforce needs through the PA CareerLink offices. Services include help for employers to improve their recruitment, retention, training, and professional development programs. They also provide business access tax credits, training funds, and strategies to prevent or reduce layoffs. Figure 1 below presents the names and geographic distribution of the 22 WDAs.

Figure 1: Pennsylvania's 22 Workforce Development Areas



Research Review

As a component of the program evaluation, KPMG was tasked with conducting research that would develop a knowledge base to support business service delivery across the Commonwealth that is informed by local, statewide, and national best practices. This knowledge base is intended to identify business-specific WED needs and to compare service delivery modalities by using existing resources, published information, and the Departments' capabilities, and the Center for Workforce Information and Analysis (CWIA).

WIOA requires the establishment of a primary indicator of performance for effectiveness in serving businesses. There are currently three pilot approaches designed to gauge three critical workforce needs of the business community. This indicator is a new approach for measuring performance under WIOA's six core programs. Therefore, USDOL has implemented a pilot program during which States must select two of the three approaches to report data that the Departments will use to assess a permanent indicator.

These are as follows:

> Approach 1 - Retention with the Same Business - addresses the programs' efforts to provide businesses with skilled workers;
>
> Approach 2 - Repeat Business Customers - addresses the programs' efforts to provide quality engagement and services to businesses and sectors and establish productive relationships with businesses and sectors over extended periods of time; and
>
> Approach 3 - Business Penetration Rate - addresses the programs' efforts to provide quality engagement and services to all businesses and sectors within a State and local economy.

Pennsylvania is using the following two methods to report this performance measure:

- Repeat Business Customers. This will be measured as the percentage of repeat businesses using services within the previous three years.
- Business Penetration Rate. This will be measured as the percentage of businesses using services out of all businesses in the State.

Research Review Methodology

To achieve the stated objectives of the research review, KPMG performed a systematic review of academic literature and administrative documentation and other records. The search methodology utilized three categories of searches:

Academic Literature Search. KPMG began the research review with a search of the published academic literature on business services delivery. This search leveraged the Department of Labor's Clearinghouse for Labor Evaluation and Research (CLEAR) and Google Scholar.

State and Local Website Search. For each state included in the search process, KPMG reviewed the materials provided on department websites for the department(s) whose duties would include providing support or guidance regarding the business services managed at CareerLink offices in their state, as well as reviewing the materials contained on the websites for all workforce development areas within that state.

States were selected for inclusion in this process in three phases. In the first phase, states that were either geographically proximate to Pennsylvania or former centers of Rust Belt industry were targeted: Michigan, Ohio, New Jersey, and New York. In the second phase the search was

expanded to states whose size, population, and/or employment rates in the 12 key industries[3] were similar to Pennsylvania. Florida, Indiana, Kentucky, Wisconsin, and Alabama were selected in this phase. The third phase focused on states not yet considered in the first two phases whose economic or political environments could position them to generate higher rates of novel policies, initiatives, or other innovations. The states selected in phase three were Illinois, Washington, California, Georgia, Massachusetts, Colorado, New Mexico, Connecticut, and Oregon.

Supplemental Keyword Searches. In addition to searches for academic literature and of government websites, KPMG employed the use of key word and phrase searches. As compared to the other two search categories, these searches were not tied to a single class of document or source type. This phase was intended to consolidate and streamline the process for finding non-academic reports and publications that could potentially be of use, but which were not housed on a state or local agency's website included in the previous search category.

Using these three search methods, KPMG aimed to examine workforce development best practices documentation directly from state government websites, as well as any academic articles or reports conducted by, or in collaboration with, third parties. Sources reviewed include evaluations maintained by US Department of Labor's Clearinghouse for Labor Evaluation and Research (CLEAR), state and local workforce development plans, annual evaluations, and details of relevant (non-WIOA) external parties.

Sources Sought by the Research Review. Sources included in the research review were required to meet at least one of the following criteria:

- Published evidence of business service effectiveness or impacts
- Documentation of business service programs, implementation proposals or outlines, initiatives, or after-action reports
- Recommendations (with or without supporting performance metric evidence) on business service delivery, best practices, new trends, or novel approaches

Exclusion Criteria. KPMG imposed two exclusion criteria: sources used must have been published no earlier than Jan. 2000, to ensure its relevance to the current economy, and must provide direct evidence of services to businesses.

The second exclusion criterion is subtle, yet essential to the research review. There is a robust literature evaluating workforce services provided to individuals, from the perspective of benefits and costs to the individual and the service provider. While services to individuals do have downstream impacts on businesses, research articles and evaluations that only consider the impacts to individuals and not employers are not evidence of a service's effectiveness at meeting the needs of businesses. It is possible that a service could meet the needs of individuals without meeting the needs of businesses even if that service is intended to satisfy both sets of customers.

[3] The 12 industry clusters are: Advanced Manufacturing; Agriculture & Food Production; Bio-Medical; Building & Construction; Business Services; Education; Energy; Health Care; Hospitality, Leisure & Entertainment; Logistics & Transportation; Real Estate, Finance & Insurance; and Wood, Wood Products & Publishing.

Research Review Findings

This section provides findings from the research review. It focuses on promising and distinctive practices in other states that could be adapted for use by WDAs in the Commonwealth. Findings are organized into categories by subject matter: employer outreach; partnerships; services and initiatives targeted to small businesses or entrepreneurs; job training; digital and technological resources; tax credits and subsidies; credentialing initiatives; and the use of employer surveys.

Employer Outreach

Initiatives to improve employer outreach and perception of workforce development services are a key component to building and maintaining employer relationships.

Use of industry consultants and alternative service delivery sites. Workforce Development Boards in Florida are simultaneously testing several initiatives to improve employer outreach. The First Coast Workforce Development Board in Florida has piloted the use of business consultants to perform marketing outreach. This board has also set up partial service One-Stop Career Centers in retail districts, as well as kiosks in malls, public housing complexes, and community colleges, to extend its footprint across the region at a limited increase in required staffing resources.

No unified approach in communication strategies. There were a wide variety of communication channels used by regions to implement their outreach efforts. Business services teams and Workforce Development Boards made use of some or all of the following: newspaper advertisements, local radio and television stations, reputation, word of mouth, referral from partners, social media, and internet video. There was a lack of evidence for the effectiveness of individual communication channels or in combination. This may reflect both the need for a mixed approach that includes multiple channels as well as the absence of a clear best outreach. The cost of each channel, resources available for outreach, and whether other agencies may provide funding may also be factors in this decision. Factors impacting communication decisions will be explored further in the Qualitative Study component of the evaluation.

Partnerships

Many WDAs have established partnerships with public or private groups that have a mission to drive the success of business services or who benefit as customers. In addition to supporting service delivery, partnerships and collaborations have the potential to deepen relationships between BSTs and their employer customers.

Evidence for the impacts of partnerships. The Workforce Innovation in Regional Economic Development (WIRED) Initiative began in 2006 and its status reviewed in 2011. It aimed to drive collaboration across systems and align public and private partners across 13 regions. In a survey of stakeholders, respondents named as their most significant contacts for regional transformation efforts as their local Workforce Investment Boards, community colleges, and other economic development agencies. Respondents also noted many benefits from lasting collaborative relationships. The highest proportion of responses touted the value of cross-

professional networks, open communication, and out-of-the-box thinking. Respondents also believe that partnerships can be instrumental in building a well-prepared talent base for employers.

Employer networking and collaboration initiatives. Most states included in this evaluation have established partnerships and collaborations that provide resources to employers, as well as opportunities for employers to share and network. New Jersey's Central Jersey Job Developers Association (CJJDA) is composed of business service providers, local employers, and local WIB representatives who meet monthly to share their employment and training issues, as well as to network. The Georgia Alliance for Workforce Development (GAWD) meets quarterly to provide networking and best practice data on various aspects of workforce activity. It also sponsors job fairs. New Mexico's Ready NM Partnership brings together the state's workforce and higher education departments to provide resources to New Mexico employers about job and career training opportunities available in their community. The West Shore Community College (WSCC) Business Opportunity Center in Michigan collaborates with businesses to provide innovative practices for business excellence. The center works alongside business and industry partners to provide training to businesses that wish to strengthen their regional and economic competitiveness in a wide variety of job skill areas. Alabama Industrial Development Training (AIDT) serves employers by providing pre-employment services, including training development, videography, media, and project support, as well as post-employment services, such as on-the-job training support.

In addition to initiatives above that tend to serve a broad range of business types, some states have established industry-specific partnerships. These targeted initiatives have the potential to drive growth in priority industries as well as being able to focus on industry-specific challenges that an all-purpose partnership may not have resources to address. Examples of associations that have or could make strong partners for their local boards are provided below.

Industry Associations are valuable targets for partnerships. In many states, including Pennsylvania, industry leaders have established associations and partnerships to drive solutions to their industry's workforce needs. Illustrative examples are provided for manufacturing, technology, and the life sciences. The Southeastern Pennsylvania Manufacturing Alliance (SEPMA) is one of many examples of manufacturing associations and partnerships that connect manufacturers and provide opportunities for increased networking, partnering, and information exchange within their industry. Partnering with these associations provides a setting to receive insight into the emerging needs and challenges faced by employers in this industry as well as a means of outreach to employers that were not currently customers for business services. An example of a technology partnership in Pennsylvania is the Innovation Technology Action Group (ITAG). Chester County's Workforce Development Board is currently a partner of ITAG. For the life sciences, Medical Main Street in Oakland County, Michigan is an association set up to serve as a center of innovation. It is a private alliance of hospitals, universities, medical device, and biopharma companies. They host networking events, featuring innovative professionals in healthcare, medical device, biotech, life science, and pharmaceutical industries.

Industry forums. Pennsylvania is one of several states, including Washington, Oregon, Colorado, and Michigan, who have set up recurring forums and summits that bring together employers to share knowledge and experience. Metro Denver's Industry-Specific Forums brings together industry leaders with workforce development partners to identify mutual priority activities across the industry. The forums have helped companies focus on their own future worker needs as well as shared needs with others in the same industry.

Some states have utilized CEO-led partnerships to help meet and support employer needs, as well as to identify and implement leading practices. Business Roundtable's Workforce Partnership Initiative (WPI) is a CEO-led initiative in Ohio, New York, Wisconsin, Illinois, and California. WPI partners CEOs from leading U.S. companies with local colleges and universities to fill high-demand jobs in STEM-related fields and in skilled trade positions. These partnerships help to better align career and educational pathways, which ensures that companies have a strong supply of talent. TalentFirst in Mason County, Michigan is another CEO-led effort. The program is composed of CEOs from around the region and strives to improve the quality and quantity of the region's talent to meet increasingly complex and diverse workforce and business needs. TalentFirst recognizes gaps, evaluates leading practices, and advocates for their implementation.

Partnerships are also able to strengthen their area's talent pipeline. Kentucky and Michigan both have the Talent Pipeline Management (TPM) program. This program offers a method to closing the skills gap by applying lessons from supply chain management to workforce partnerships. Employers work together using internal, proprietary data to identify shared pain points. Employers then work with the necessary stakeholders, such as education and training providers, to develop sustainable talent pipelines and apply solutions to employers' most pressing difficulties. Through this program, employers are able to have a return on their investment by filling jobs with qualified candidates and reducing the costs of talent recruitment and retention. Illinois' Talent Pipeline Program uses strategies to train workers who can contribute to a businesses' growth and success. Projects funded under this program aim to develop sustainable work-based learning programs to help Illinois companies retain and train current workers and hire new staff.

Task forces or teams are another type of valuable partnership. Michigan's Local Industry Cluster Teams are formed based on local needs and are led by employers. Throughout Michigan, there are over 40 formally identified industry cluster groups. The team develops statewide policy and provides technical assistance to support regional cluster activity. Another example is Arapahoe County Business Recovery Taskforce. This taskforce was built on existing collaborative partnerships to create a strategy that would ensure the continued competitiveness of local businesses following COVID-19. It has allowed for the Local Workforce Development Board and its partners to address business needs with a single, impactful voice. In addition, the area's business and industry partners represented on the Taskforce helped advise on how to allocate workforce, CARES, and ARPA funds; eventually, these strategies were shared with the County Department and agency leaders for action and implementation.

Partnerships can connect employers directly to the public workforce development system. Illinois' Integrated Business Services Work Group is comprised of the state's WIOA core partners, business leaders, representatives from the Illinois Workforce Partnership (IWP), and business representatives from the IWIB and IWIB apprenticeship committee. The group meets monthly to address opportunities and challenges to improved integration of business services. It aims to create a framework for workforce, education, and economic development partners to better listen to, learn from, and respond to Illinois' businesses. The Connecticut Business and Industry Association (CBIA) has placed two full-time staff members in the Hartford One-Stop Career Center. The staff members are able to leverage CBIA's access to employers, as well as understand business needs on behalf of the one-stop center. They also introduce employers to one-stop offerings, encourage employers to submit their employment needs to the center, and bring employers to the center to identify needed work competencies and skills. The CBIA serves as a link between employers and the Workforce Investment Board as they are able to share employer concerns, input, and needs directly to the WIB.

Partnerships can also create a connection between employers and students, the youth workforce. The CMU Partnership in Mesa County, Colorado created a shared position as a workforce development liaison. The position sits at the Mesa County Workforce Center (MCWFC) two days a week and at the Colorado Mesa University (CMU) three days a week and is funded by both organizations. It has been able to bridge the communication gap between local employers and recent CMU graduates and alumni, allowing employers to have a greater insight into their talent pool. Pennsylvania's Work Attributes Toward Careers in Health (WATCH) Project uses a variety of approaches to build relationships with employers, connect employers to project participants, and seek employer feedback. The project encourages employers to turn to them when they need to fill a position. WATCH provides opportunities for employers and students to meet and have discussions prior to hiring, which allows students to become aware of employers' expectations and for employers to get a feel for the student's abilities firsthand. WATCH career coordinators also collaborate with employers to discuss participants who have applied for work or who have been hired. New York's Buffalo and Erie County Health Professions Collaborative hosts monthly Breakfast Clubs to help students meet and interview with local employers. For employers, the Breakfast Club is a valuable recruitment opportunity, providing introductions to eager and prepared healthcare graduates and potential new hires.

Partnerships can lead to innovative approaches for workforce development to aid employers. The San Diego Workforce Partnership has created an Employer Research Matrix for the healthcare industry. This matrix is designed to gather all relevant information from employers regarding their hiring needs and processes. It is expanded by and shared with all job developers as it is updated, which prevents staff from asking employers the same questions repeatedly. The matrix also allows staff to be more efficient and less burdensome to the business community. It ensures that discussion is focused on what employers need rather than merely offering job seekers to each employer. The partnership has used the Employer Research Matrix as a tool to engage employers by focusing on understanding their needs and values. The New Mexico Partnership is designated by the State to be an employer's single-point-of-contact for locating businesses. It is composed of a team of experts that work closely with local and

statewide economic developers, as well as officials, to ensure that employers have the assistance they need to succeed. The team is able to offer a coordinated approach and use its network to simplify site the selection process by providing expertise on talent availability, critical infrastructure, educational and R&D institutions, real estate and facilities, incentives, and other factors involved in business location decisions.

Another approach to aid employers is Ohio's Workforce Initiative Association expansion of the Business Resource Network (BRN) into three additional Local Workforce Innovation Areas. The purpose of the BRN was to function as a central player in building connections between the workforce system, economic development, and other public and private organizations. The initiative sought to help businesses access critical services in order to sustain and create jobs. To achieve this, a comprehensive proposal containing offers of assistance from one or more of the more than 200 organizations that served as BRN partners was sent to selected businesses that were at risk of layoffs or had the potential for growth and interviewed. These offers were tailored to address the identified business' needs. An implementation evaluation found that the BRN program was an effective method for finding business's present and future needs. It was also successful in helping employers learn about the extensive services and resources that are available to help them. The BRN was also able to meet and exceed its performance goals of identifying businesses, offering assistance, targeting at risk and growing businesses, and conducting outreach opportunities.

Ohio also has the skills-based hiring model TalentNEO, led by Towards Employment in partnership with local community-based organizations, business groups, and the public workforce system. The model was piloted in New Mexico and produced promising results, including reductions in cost-to-hire and time-to-train for employers. TalentNEO provides employers with new tools to access talent by using skill assessments that have been proven to measure workplace skills critical to job success. These assessments are able to assess foundational skills that are relevant to the employer's job opening and can help as a validated reference for both the job seeker's current skill levels and their ability to successfully learn on the job. This model can be used as a supplementary tool to predict a job seeker's ability, as it may not be immediately clear based on education levels and resume review.

The Southwest Michigan Employer Resource Network Expansion (SWMERN-E) Project, composed of private-public groups, is a notable partnership as well. SWMERN-E collaborated with the public workforce system and engaged with member organizations to build career pathways for employees. The project provided services including onsite success coaches, career coaching, and support for career advancement through short-term occupational skills training available to member organizations. Through employer and participant surveys, an evaluation of SWMERN-E found that the expanded model was able to deliver the necessary resources that employers could use to aid their workforce. Employers reported value in networking with one another and working collaboratively across firms to identify retention challenges in the local community.

Small Businesses & Entrepreneurs

Some states have services specifically to engage with and encourage small businesses and entrepreneurs. New York's NYC Business Solutions is a set of services designed to help entrepreneurs to start, operate, and expand within New York City. These services include launch, financing, recruitment, legal, government navigation, business courses, incentives, training for employees, and selling to government. Ohio, California, and Connecticut have networks and committees designed to aid entrepreneurs and small businesses. The Entrepreneurial Signature Program in Ohio is a regional, comprehensive network of high-value services and assistance providers that help technology-based entrepreneurs and small tech-based companies. California's Social Entrepreneurs for Economic Development (SEED) awards microgrants, entrepreneurial training, and technical assistance to target populations looking to start or maintain a small business that address a social problem or community need. Connecticut's Innovation Ecosystem (CTNext) is a network of business professionals who offer services to entrepreneurs, as well as access to funding, partnership networks, business advisors, and technical programs to help grow a business.

Mentorship programs can be significant in the development of local entrepreneurs and small businesses. Oregon's Venture Catalyst program strengthens entrepreneurship across the state by deploying seasoned and experienced entrepreneurs, or "Venture Catalysts," as coaches, mentors, and resource connectors for local entrepreneurs. An independent impact and evaluation study determined that the Venture Catalyst program had overwhelmingly positive support from entrepreneurs, service providers, and government-related economic development staff. The study also found that the Venture Catalysts were highly valued as the go-to resources and connectors for entrepreneurship in the communities in which they worked and that activities such as connecting with mentors, pub talks, and pitching events were deeply appreciated by entrepreneurs. In Mason County, Michigan, the SCORE Mentorship programs aimed to foster vibrant small business communities through mentoring and education. SCORE mentors support small business owners by volunteering their time, energy, and knowledge.

Certain initiatives and programs can also aim to help potential employers start and build their business. Florida's start-up technology grants gave grants of up to $100,000 to start-up technology companies; this program was so popular that its four-year allocation was exhausted in two years. Florida also has Startup Quest, an entrepreneurial training program in eight Local Workforce Development Boards across the state. Startup Question includes a 10-session entrepreneurial training program that gives participants an introduction to the processes required to begin a startup, as well as an entrepreneurial mentor. In New York, sponsored by the Finger Lakes WIB, The Entrepreneurs Network (TEN) program supports life sciences, early-stage technology, and scalable, high-revenue potential start-up companies. TEN promotes business creation and allows for potential employers to interact and be mentored. Members of TEN also have access to national experts and funding resources. Project GATE, which was implemented in Pennsylvania, was a program offered to those interested in starting or growing a small business. Participants were offered an initial assessment of their business needs, classroom training, one-on-one business counseling, and assistance in applying for business financing. An evaluation of Project GATE found that it had a positive and statistically significant

impact on the probability of owning a business in the first few quarters. Participants started their first business sooner and their businesses had greater longevity than the control group. Results of the Project GATE model suggest that it has advantages over the existing self-employment services available within participating communities. Participants in Project GATE also reported higher levels of satisfaction with services received than those in the control group.

Training

Training services are powerful workforce development tools for businesses. A study of successful workforce development programs in Chicago found that offering business services like customized training helps organizations build and strengthen relationships with employers. One program offered classes, as well as technology assessments, for small businesses as a means of introduction to employers, who they hope will provide job placements. Research on employer provided training discovered that these trainings have benefits for businesses, in that they are able to increase firm productivity and decrease turnover. In addition, evidence from sector-based training evaluations suggest that subsidizing firms to provide training can be successful and have the potential to raise earnings or worker productivity, giving further indication that publicly funded but employer-provided on-the-job training is effective.
Many of the states evaluated have training programs that offer employers financial incentives, including training grants and reimbursements. Some notable programs follow. Illinois's TIFWorks stimulates business success by funding workforce training costs for businesses located in tax increment financing (TIF) districts. This program helps businesses become better equipped to improve performance and productivity, expand product lines, and gain new customers. The Quick Response Training program in Florida provides state funds to qualifying businesses to train new, full-time employees. The program is performance based and was designed to be flexible and customer driven. Training can be offered through various educational providers or on-site at the business' location. Businesses can use funds to pay for instructors' salaries, to develop curriculum, to provide textbooks and manuals, and to pay for materials and supplies. The California Employment Training Panel (ETP) is a pay-for-performance approach to reimburse employer that train their employees. A mixed-method study of ETP found that, overall, ETP had positive and significant impacts on company sales and firm size. Ohio's TechCred program gives businesses the opportunity for employers to upskill current and future employees in a technological economy. Through this program, the state is able to reimburse training upon completion of an eligible credential, which must be short-term, industry-recognized, and technology focused. Pre-approved credentials are determined by Ohio employers, making it a business-driven program.

Another common training offering for employers among the examined states is customized job training. Quick Start, Georgia's international acclaimed workforce training program, provides customized training free-of-charge to qualified new, expanding, and existing businesses. Economic development offices consistently work to ensure local companies have the customized, contract training they need to keep their workforces' skill up-to-date and cutting edge. Skill Advance Colorado helps businesses and nonprofits create customized job training for employees. This training develops Colorado's workforce and helps local businesses remain

competitive. TechHire New Mexico also provides employers in Bernalillo, Sandoval, Torrance, and Valencia Counties with customized training programs that align with employer needs and increase opportunities for employers to hire high-quality, diverse, and entry-level talent. The Technology Center in Florida is used to provide customized training and accommodates employer training using company trainers, curriculum, and equipment.

Some training services can be industry specific. New Mexico, Florida, and Ohio all offer trainings that benefit businesses in the technology sector, particularly to meet employers' growing need for IT workers. The Eastern Connecticut Manufacturing Pipeline Initiative (MPI) enhances collaboration and alignment of workforce programs to target employer needs through customized training, ensuring training and services are aligned with available jobs, and increasing the commitment from employers in hiring, specifically in the manufacturing sector. An evaluation of the program found that MPI met the needs of employers by providing needed employees. The MPI was also effective at transitioning job seekers with little to no manufacturing experience to manufacturing employment in a short amount of time. Training initiatives in New Jersey and Connecticut focus on the retail sector. New Jersey's Retail Skills Center (RSC) is an educational and training resource for merchants and surrounding employers of the Jersey Gardens Mall. The RSC provides retail skills training to potential retail industry workers through a classroom training program ranging from four to six weeks. Employers reported a number of benefits to hiring RSC graduates, including reduced recruitment costs, increased customer service skills of new employees, a more stable flow of qualified workers, and a reduced turnover of employees. Connecticut's Southwest Retail Career Academy is a similar program that helps Connecticut retailers find skilled workers. The Academy includes a five-week course, as well as trainings in career readiness, sales, and customer service to obtain the National Retail Federation Certification.

On-site training initiatives can also prove useful to employers. Massachusetts's Building Essential Skills Through Training (BEST) Initiative specifically focused on working closely to employers to deliver on-site workplace foundational skills training, as well as career ladder development and support. According to state officials, the BEST initiative had a positive effect on subsequent funding opportunities in strengthening the focus on job retention, career advancement, and employer customers.

Massachusetts also offers training services for adults, particularly adult learners as well as low-income adults. The Massachusetts Pathways to Economic Advancement is a strong pilot program in which service providers work together to offer a series of workforce development services. Participants receive vocational English language classes that are integrated with job search assistance, as well as coaching for successful transitions to employment, higher-wage jobs, and higher learners. This project matches employees with the skills employers need and employers with potential employees. Massachusetts' WorkAdvance program provides training and employment services to low-income adults to improve employment outcomes and meet the needs of local employers. The program had five main elements including screening of potential participants, work-readiness services, occupational training, job development and placement, and follow-up retention service coordinated with employers.

Digital & Technological Resources

With an increasingly technological society, as well as the COVID-19 pandemic, digital and technological services are critical for serving employers. Many of the evaluated states have developed websites, as well as online programs and marketplaces, to better service employers. Notable initiatives follow:

Business Owner Space (BOS) is an online resource in California that assists regional businesses and entrepreneurs through readiness assessments and follow-ups, as well as connections with local business services. BOS also provides information on industry job fairs and seminars, as well as basic information and links to further assistance on topics like business taxes, licenses and permits, employment law compliance, and workers compensation.

Wisconsin's Supply Chain Marketplace is a dynamic online platform that supports local business growth and allows for access to new market opportunities by helping Wisconsin suppliers engage with new customers and facilitate buyer connections. The marketplace is free and open to all business so that suppliers can showcase their business capabilities, be readily searchable to potential buyers by targeted industries, certifications, and ownership, and access requests for proposals and calls for innovation.

Greater Macon Works in Georgia is an interactive workforce development platform that links recruitment, skill building, and career navigation into one comprehensive system. The Greater Macon Works website features local businesses and industry jobs through short videos or "career cards." The platform allows employers to connect directly to job seekers.

Illinois workNet is the state's primary online employment and training resource for employers. It offers employer-based training programs including incumbent worker reskilling and upskilling, on-the-job training (OJT), and customized training. Businesses can also be reimbursed for up to 75% of new employees' wages during the OJT period.

The Talent Resource Navigator (TRN) in Illinois is an online one-stop shop that guides employers on where to find all training related programs and funding to expand their talent pipeline and applicant pools. The Navigator is available at no cost. Employers can strengthen their engagement with the Navigator by setting up a free account to obtain personal technical assistance and customer support. A key feature for employers is the Talent Pipeline Assessment, which evaluates and benchmarks their current talent development strategies against recognized best practices. Following the employer self-assessment, the Navigator will suggest aligned resources based on those results and notify the employer when new resources are added.

In response to COVID-19, Colorado implemented Upskill Pikes Peak, a free-to-use online learning management system. This program allowed for employers, existing employees, and job seekers to gain skills on popular computer programs and soft skills. The Pikes Peak region found success with their Business Skills modules, as well as their Career Skills videos.

During the COVID-19 pandemic, the need for remote services became apparent in order to maintain services to employers. In Pennsylvania, the Allegheny Intermediate Unit improved the reach of their counseling and training efforts by leveraging video conference technology. Colorado's Tri-County Career Center established a virtual appointment system, where customers were able to self-schedule virtual or initial appointments. The system was so successful that it was expanded and enhanced to other program areas throughout the county. The Capital Workforce Partners in Connecticut created a call center to assist job seekers and employers. The call center assisted employers who were looking to fill essential positions.

Tax Credits & Subsidies

Research and feedback from businesses suggest that financial incentives for employers, such as tax credits and subsidies, are beneficial in offloading monetary burden on employers, as well as in retaining and upskilling their workforce. The most widespread tax credit program is the Work Opportunity Tax Credit (WOTC), which was present in every state examined. The WOTC is a federal tax credit that incentivizes employers to hire and train job seekers from targeted groups and aims to offer a cost-effective method of adjusting hiring practices for employers. Although there are additional expenses from employing these individuals, research from the Department of Labor found that employers had a positive assessment of the WOTC. The WOTC has also been proven to help employers with job retention. According to a study conducted by the state of Georgia, WOTC workers were less likely to leave the company than their non-WOTC counterparts; WOTC workers also stayed longer with the employer than their non-WOTC counterparts.

Many of the states observed also offer job creation tax credits. While the value of the tax credit differs from state to state, these credit programs aim to encourage and reward businesses for increasing their workforce. The criteria for job creation tax credits varies by state. In Pennsylvania, employers that apply for the Job Creation Tax Credit (JCTC) must make a commitment to increase their employment by a specific number of employees within a five-year period while companies in Ohio must create ten jobs within three years and have a minimum annual payroll value to be eligible for the Job Creation Tax Credit. The Grow NJ Assistance Program in New Jersey offers tax credits not only to businesses that create jobs, but also retain them. Notably, New Mexico has the High Wage Jobs Tax Credit, which offers tax credits for businesses that create and retain jobs that have surpassed a certain salary threshold. Certain criteria may also increase the value of the job creation tax credit. For instance, the Alabama Jobs Act provides additional credits for companies that employ a certain percentage of veterans in their eligible workforce. For businesses who receive New York's Employment Incentive Credit, modified credit can be offered for those making certain research and development investments.

In some states, job creation tax credits are made available to specific industries. Connecticut's JobsCT Tax Rebate Program provides refundable tax credits for companies creating jobs in targeted industries. Additionally, the Michigan Job Creation Initiative offers a substantial tax credit to businesses from "the fastest growing industries nationally," including high-tech, homeland security, and alternative energy. As a result of the COVID-19 pandemic, Georgia has

created the Personal Protection Equipment (PPE) Manufacturing Tax Credit that rewards job creation that expands the manufacture of PPE and hand sanitizer in Georgia.

Job creation tax credits can target different types of employers, specifically small businesses. The Illinois Small Business Job Creation Tax Credit creates a tax credit against withholding tax for small employers who hire new, full-time employees during a 12-month period. The Kentucky Small Business Tax Credit Program (KSBTC) has stricter conditions. To be eligible for the KSBTC, small businesses must have hired or sustained at least one new job in the last year as well as purchased at least $5,000 in qualifying equipment or technology.

Some states also offer job creation tax credits based on geographic location. Pennsylvania, New Mexico, and Florida all offer rural jobs tax credits. These programs allow access to capital for eligible businesses in rural areas. Florida also has an urban job tax credit that offers incentive for eligible employers within one of the 13 designated urban areas to create jobs.

Tax credits can also be used to encourage businesses to locate or expand operations within a certain state. The Kentucky Business Investment (KBI) Program provides income tax credits and wage assessments to new and existing agribusinesses, headquarters operations, manufacturing companies, coal severing and processing companies, hospital operations, alternative fuel, gasification, energy-efficient alternative fuels, renewable energy production companies, carbon dioxide transmission pipelines and non-retail service or technology related companies that wish to locate or expand their business in Kentucky. Enhanced incentives can be offered to qualified projects in certain counties. The California Competes Tax Credit (CCTC) is an income tax credit made available to businesses that wish to locate or stay and grow in California. Businesses of any industry, size, or location are allowed to apply.

Training tax credits can allow for employers to reduce or eliminate necessary training costs for workers. Washington's State Board for Community and Technical Colleges (SBCTC) Customized Training Program provides Business and Occupation (B&O) Tax Credits to employers to offset training costs for workers. This program gives incentives to invest in worker training, allows more employers to be able to afford to upskill their workforce, and boosts business profitability. Some training tax credit programs aim to either improve training programs or encourage participation in retraining. In Kentucky, the Bluegrass State Skills Corporation's Skills Training Investment Credit provides credit against Kentucky income tax to businesses that sponsor occupational or skills upgrade training programs. Georgia Retraining Tax Credit Program provides tax credits to businesses for each employee who has successfully completed an approved retraining program. The objective of this program is to foster the profitability and competitiveness of Georgia's existing businesses and industries. Training tax credit programs are not only limited to a business' employees, but their interns as well. New York's Employee Training Incentive Program (E-TIP) Tax Credit provides a tax credit to employers that conduct eligible training or obtaining training that upgrades, retrains, or improves the productivity of their employees, as well as approved internship programs that provide training in advanced technology, life sciences, software development, or clean energy.

Another critical financial incentive for employers is wage subsidies. Wage subsidies give businesses incentive to hire and train workers by reducing their cost. Metro-Atlanta Local Workforce Investment Area's Project to Aid the Long-Term Unemployed provided temporary subsidized work experience positions for job seekers and matched participants with employers. Though the study on this project was inconclusive due to the small sample size, the evaluator recommended that improving marketing strategies to increase awareness of the program and its benefits to employers could make a difference. States like Indiana and Colorado have wage subsidy programs that target the youth population. Employment Aid Readiness (EARN) Indiana is the state's work-study program. Participating employers are able to receive state matching funds of the student's hourly wage. EARN is able to match students and employers and find the right fit for their team. Denver, Colorado's Certified Youth Employment Program (CYEP) was devised as a means to alleviate employer's concerns with hiring youth workers as the minimum wage increases. The CYEP allowed employers to qualify annually to pay 85% of Denver's minimum wage for youth employees.

Credentialing Initiatives

Many of the examined states have created credential registry and transparency programs that can be used as valuable resources for employers. Transparency around credentials ensures that providers are preparing employees with the right knowledge and skills to succeed on the job for employers. Indiana, Massachusetts, and Colorado have launched projects with Credential Engine that provide individuals, institutions, state policy leaders, and employers with the tools to use a common language to describe credentials, evaluate the value of credentials, identify critical education and employment pipelines, and understand the skills and competencies obtained by earning a credential. The Credential Engine offers a wide range of free and fee-based services that can be tailored to meet employers' needs and goals, particularly in managing credential and skill data. Michigan, Ohio, New Jersey, Indiana, California, and Washington also have credential database and registry programs. These programs ultimately allow for employers to discover and confidently hire job seekers with the necessary skills for the job.

Employer Surveys

Several states have employed the use of surveys to better understand and aid employers in the context of workforce development. New Jersey developed and launched the Survey of New Jersey Small and Mid-Sized Employers in order to collect information on the practices used and challenges encountered by New Jersey small and mid-sized employers in hiring, training, and retaining their workforce. The information collected from the survey will be used by North Jersey Partners, led by the Bergen and Morris-Sussex-Warren Workforce Development Boards and the Employers Association of New Jersey (EANJ), to develop and advocate for resources, including apprenticeship programs, specifically suited to the needs of small and mid-sized employers statewide. The Florida Workforce Needs Survey is a two-year research program that aims to examine the lasting effects of COVID-19 and provide insight into how Florida businesses and educational institutions can partner to advance the hard and soft skills needed to narrow Florida's workforce skills gap and improve the talent pipeline. It also looks to provide employers in-house training models and access to free training and education opportunities available

through partners. New York also launched a business survey in order to assess businesses' needs coming out of the pandemic. Pennsylvania has launched Engage! surveys that are able to connect partners to county-based businesses through in-depth, documented conversations that gauge the needs of owners, monitor trends between industries, and expand on communications between policymakers and the business community. A common task for the Incumbent Worker Council in Indiana is to survey employers for skills in demand and develop according and related training programs. Surveys can allow for local workforce development systems to gather greater insight into employers' needs and goals directly and adjust their services and service delivery accordingly.

Qualitative Study

The Qualitative Study consists of a survey of businesses and interviews with various entities that make up the Commonwealth's public workforce and economic development system across the Commonwealth. It is a critical component of the evaluation, with the objectives of providing insight into the current business survey model, local best practices, and gaps or opportunities identified by business services teams or employer stakeholders.

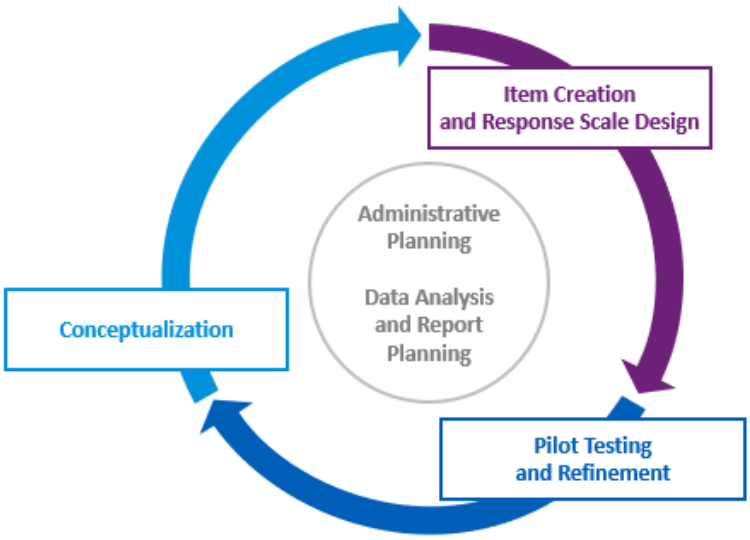
Business Survey

As a component of the Qualitative Study, the purpose of the Business Survey is to better understand the needs of employers and how those needs might align to the services offered via the Commonwealth, as well as to gauge the perception of employers as they relate to the services that they have received or identify themselves as needing.

Business Survey Methodology

To design and develop the survey and interview instruments, KPMG leveraged an iterative design and development methodology that is illustrated by Figure 3 below. The activities aligned to each phase within this iterative process are described in the remainder of this section.

Figure 3: Design and Development Process



Conceptualization Phase. This phase aimed to define the scope of research questions that the business survey and interview would address and identify a high-level structure for the instrument to ensure that the survey items developed aligned with the selected research questions. KPMG worked closely with the Departments to identify which WED program components were feasible to evaluate based on the evaluation objectives and the availability of

information to support the evaluation.[4] After the business service components under evaluation were identified, KPMG developed and refined the research questions in collaboration with the departments through an iterative process that aimed to identify gaps in the survey instrument and prepare additional questions to address those gaps. Next, an initial outline of the survey instrument was prepared and presented to the departments for their review and feedback.

Item Creation and Response Scale Design Phase. This phase focused on the design and development of survey items for the instrument. KPMG leveraged the high-level structure from the Conceptualization Phase that was approved by the Departments to draft items for the online and oral questionnaires and those items' response scales which, together, are intended to capture insights that would address the research questions aligned to each content category. For both the online and oral questionnaires, items included stand-alone questions, as well as a series of linked questions supported by a prompt or series of linked prompts. In the case of the online questionnaire, a response scale refers to the format in which a respondent can input their response. For an oral questionnaire, a response scale implies that an interview participant is likely to respond a certain way based on the format and subject of the question or prompt in addition to the sequencing of questions, which is used to plan the phrasing of that question and any follow-up questions.

KPMG prepared design documents, which describe the structures of the online and oral questionnaires and align supporting content. The design documents also indicate the phrasing, formatting, and sequencing of individual questionnaire items and include a description of their corresponding response scales. For the online questionnaire, the design document includes pertinent details related to the application of skip pattern logic and other parameters. For the oral questionnaire, details were included around the facilitation tactics used. Over a series of discussions, KPMG reviewed the design documents, which were prepared as Excel files, for both the online and oral questionnaires with L&I, DCED, and OVR representatives who provided direct input for inclusion. In the case of the online questionnaire, this input was particularly critical to identify a common list of services offered across the Commonwealth via the PA CareerLink staff and agency partners. For the oral questionnaire, this input was particularly important in refining the facilitation methodology and phrasing of individual questions to ensure that the experience would resonate with the target audiences for Group 1 and Group 2 sessions. KPMG then developed the survey and interview instrument in accordance with the approved design documents.

Pilot Testing and Refinement Phase. This phase aimed to ensure that the survey and interview instruments where able to meet their stated research objectives. Additionally, this phase helped to ensure the technical functionality of the survey instrument. From a suitability perspective, KPMG examined the design and hierarchy of online and oral questionnaire items, design and consistency of response scales, and application of logic (in the case of the online questionnaire) to ensure that data inputs could be translated to data outputs that support the underlying research objectives. From a functionality perspective, KPMG met with L&I and their

[4] For additional detail, see the Logic Model section of the Evaluation Methodology & Tool report prepared by KPMG and delivered to the departments on May 20, 2022.

survey design subject matter expert (SME) to initially identify functional requirements for selecting the survey administration tool. Functional requirements focused on capabilities related to access and promotion, the range of items and response scales to select from, features to support data management and analytics, as well as other considerations to assist survey administration. KPMG continued to coordinate with L&I and the survey design SME throughout the development process. KPMG developed and tested the online questionnaire via Microsoft Forms within the KPMG technical environment. A file extract was created for L&I to duplicate the online questionnaire via Microsoft Forms within the L&I technical environment. KPMG worked with the departments to conduct a final pilot test with a focus on things such as accessibility, navigation, structure, content development, the alignment of questionnaire items to response scales, and formatting. Refinements were made to both the survey and interview instruments as needed.

Administrative Planning Phase. This phase focused on logistics related to survey administration. KPMG worked with the departments to define the processes needed to identify, recruit, and/or conduct outreach with respondents (e.g., distribute survey communications, address survey related questions, etc.).

Data Analysis and Report Planning. In this phase, the design of the survey instrument was reviewed to anticipate any potential challenges to its internal validity. The survey instrument has strong internal validity to the extent it has been designed and implemented such that there can be confidence the survey results reflect the true inner state of respondents.

The survey's external validity was also considered at this time but was addressed through the survey's statistical sample selection process. For more detail on this, refer to the sample selection procedure section of this report.

To minimize threats to internal validity, a process of review was developed across all stages of instrument deployment, including data collection, preparation, input, processing, output, interpretation, and reporting. A range of anticipated respondent states, such as levels of engagement and appreciation with business services, were considered in terms of how the hypothetical respondent would interact with and provide responses to survey items. The review process included reviewing the proper documentation needed to inform the design, selection of the proper administration tools and or alignment of the appropriate implementation methodologies and having a clear understanding of what other data sources, supplemental data, and analytics and reporting tools would be needed to translate the data into meaningful insights.

After completion of the review, it was determined that most of the survey and interview items were designed in a way that supports the accuracy, suitability, and completeness of the survey and interview data without further revision. Some items were revised based on KPMG's internal review or feedback from the Departments. One area in which revisions were made was to better reflect the business's perception of and engagement with services as compared to how the Departments and CareerLink staff administratively organize those services.

Survey Design

The Business Survey consists of an online questionnaire hosted via Microsoft Forms and made accessible to business via a universal URL. The questionnaire includes a series of five sections: Employer Profile; Opportunities and Challenges; Recent Service Engagement; Service

Evaluation; and Service Quality Rating. The last two sections are given to employers who report using services. Details on the content of each section of the survey are provided below.

Section 1: Employer Profile. The section captures descriptive information about the employer and its unique attributes.

- **Employer Identification Number (EIN):** The EIN is a unique nine-digit number assigned by the Internal Revenue Service (IRS) to business entities operating within the United States for the purpose of identification.
- **North American Industry Classification System (NAICS) Code:** NAICS Codes are six-digit codes that classify businesses into a specific business sector.
- **Industry Cluster:** The Commonwealth has identified 12 Industry Clusters[5] of interest, which combine to account for nearly eighty-three percent of all employment in the commonwealth. Survey respondents are asked to identify which, if any, of the industry clusters their business is associated with.
- **Geographic Region:** The businesses' geographic region is determined based on the county or counties within the Commonwealth that the business primarily conducts its operations and/or where it primarily employs its workforce. Respondents whose businesses are active across multiple counties are given discretion to identify their business with a "core" county or state-wide to reduce the burden of listing all individual counties in which the business may be active.
- **Workforce Headcount:** This refers to the overall size of the employer's workforce.

This information is used to identify and classify the responding business entity relative to the overall sample of businesses, as well as to interpret the overall survey data. Additionally, the questionnaire requested contact information for at least one representative of the business and permission to contact this individual if further outreach is necessary to interpret survey results.

Section 2: Opportunities and Challenges. This section seeks to understand how an employer may prioritize meeting needs related to strategic business, human capital, and recruitment and hiring. It also determines what opportunities or challenges the business has faced related to these categories. Lastly, it identifies which of these opportunities or challenges the employer may have experienced because of the Covid-19 Pandemic.

Section 3: Recent Service Engagement. For purposes of the evaluation, recent service use was defined to mean a business that had received one or more business services within the past 12 months. In this section the respondent is queried about the services provided via the Commonwealth the employer has engaged within the past 12 months. These include a list of services that are commonly provided to employers across the Commonwealth by the PA CareerLink Business Service Team (BST). It also determines whether the employer has received services similar to those offered via the Commonwealth by other non-affiliated vendors. Finally, it gathers feedback on what barriers the employer may have had to overcome to receive

[5] The 12 industry clusters are: Advanced Manufacturing; Agriculture & Food Production; Bio-Medical; Building & Construction; Business Services; Education; Energy; Health Care; Hospitality, Leisure & Entertainment; Logistics & Transportation; Real Estate, Finance & Insurance; and Wood, Wood Products & Publishing.

services, as well as insight into what additional services the employer may be interested in, if offered.

On the questionnaire, services are categorized in a way that would most closely resonate with how employers recognize various services based on the respective service provider. As a result, services are listed under two groups: one for L&I/DCED, and one for the Office of Vocational Rehabilitation (OVR).

In the first group of services, the respondent is not required to distinguish whether they perceived those services as coming from L&I or from DCED. This decision was made in consideration of the role of the PA CareerLink staff in providing referrals to programs overseen by partner agencies. It also factored in the limitations of available data in tracking business services provided to customers referred from one program to another beyond the initial referral. Two examples where this can arise are from programs administered by DCED: the Engage! program and PREP.

The second group of business services, those coming from OVR, were added to the survey during its development process to better align questions about business service usage with the respondent's perception of what kinds of services were included. This decision was informed by the knowledge that multiple PA CareerLink BSTs had staff that also provided OVR services. KPMG anticipated that business customers may be unlikely to draw a distinction between services associated with OVR versus the Departments when their point of contact was the same member of the BST. In addition, OVR is also a key agency partner with representation within many of the PA CareerLink BSTs across the Commonwealth. Lastly, while OVR services are provided through the PA CareerLink BST, OVR may also provide these services to employers directly through their office. As a result, KPMG decided to request information from businesses about use of OVR services separately so as not to cause confusion for respondents.

The first group of services is comprised of the following:

- Job fair
- Job matching
- Job posting list
- Recruitment assistance
- Customized training for incumbent workers
- On-the-job (OTJ) training (wage reimbursement training)
- Training programs information
- Federal bonding
- Independence Capital Access Network (ICAN) grant preparation
- Veterans program
- Work Opportunity Tax Credit (WOTC)
- Labor market information
- Engage! program referral
- PA CareerLink website technical assistance
- Partnership for Regional Economic Performance (PREP) program referral
- Prisoner reentry programs
- SkillUp™ PA program (Metrix Learning)

The second group of OVR-specific business services consists of:

- Disability awareness training

- Understanding the Americans with Disability Act
- On-the-job training contract (wage reimbursement training)
- Staffing assistance
- Applicant pre-screening
- Work opportunity tax credit (WOTC) and PA Employment Incentive Payment (EIP)
- Accessibility analysis and solutions
- Assistive technology consultation or referral
- Community work instruction
- Links to networking resources (employment network or business leadership network)
- Paid work experience
- Project search

Section 4: Service Evaluation. This optional section enables employers to provide feedback on up to three separate services received via the Commonwealth. This feedback is intended to gauge whether the employer believes that the services rendered met the employer's stated goals and/or objectives; the services created value for the business; the employer would use the service again based on past services experience; and the employer would recommend the service to another business based on past service experience. Additionally, this section helps to gain clarity on what key performance indicators (KPIs) and/or metrics an employer may use to evaluate services if any.

Section 5: Service Quality Rating. This section seeks to understand how an employer may prioritize seven key attributes of service quality. These attributes are defined as follows:

- **Reliability** - The program's ability to consistently perform a service as promised or specified
- **Responsiveness** - The program's willingness to provide prompt service and to help address customer situations
- **Assurance** - The knowledge and courtesy demonstrated by the program's personnel and their ability to convey trust and confidence
- **Empathy** - How the program demonstrates concern for meeting the unique needs of the business and fosters sincere interactions with its business customers
- **Communications** - How the program engages with business customers, including the engagement practices and materials, such as website content or brochures
- **Access** - How conveniently services are made available to business customers
- **Tangibles** - The appearance of the program's tangible assets such as its physical facilities, equipment, personnel, and multi-media

Additionally, employers may optionally provide feedback on up to three services received via the Commonwealth to rank the various attributes of service quality as it relates to the employer's experience with the service provider. Finally, employers are invited to share any feedback on their overall experience, thoughts, or questions related to the Commonwealth's public workforce and economic development system in general.

The questionnaire includes seventy-eight items. Items are structured to take either a Likert scale, single choice, multiple-choice, ranking, or open text response. Descriptions of the possible response patterns for each item type are given below.

Likert Scale. The Likert Scale is used to gauge relative perception. Respondents can indicate their level of agreement or disagreement with a statement or series of statements using a semantic differential scale that ranges from 'Strongly Agree' to 'Strongly Disagree.' A

respondent can indicate that they 'Neither Agree Nor Disagree' or indicate 'No Response' in the event that they are not able to confidently evaluate a statement.

Single Choice or Multiple-Choice Options. Single choice enables respondents to select from either a drop-down menu or list to choose a single option in response to a question. This is commonly used for questions that contain 'Yes' and 'No' values. Similarly, multiple choice enables respondents to select from a list to choose multiple options in response to a question.

Ranking. Ranking is used to determine prioritization relative to a list of options. The respondent orders the list using up and down arrows or a manual drag-and-drop feature to organize the options into an ordered list ranked from most to least important.

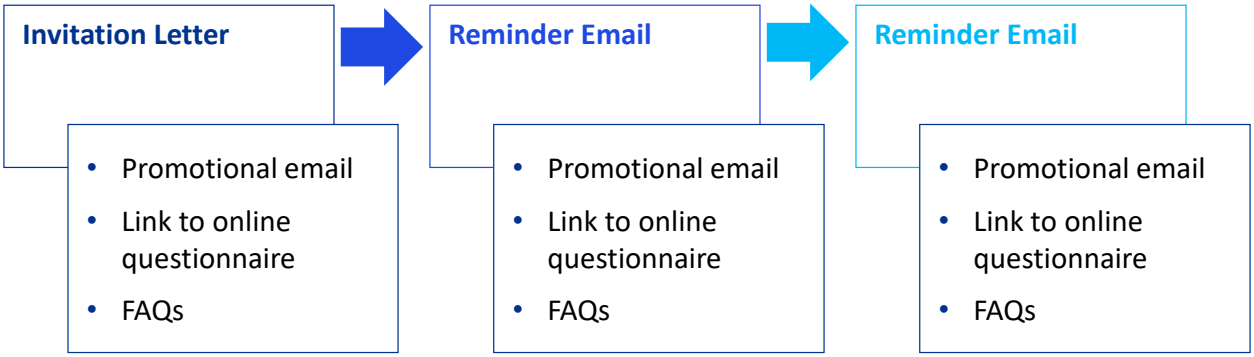
Open Text Field. Open text fields enable respondents to input free form text for their response. A limited number of open text fields are used for a short-form response, which restricts the response to a limited number of characters. This is used primarily to gather contact information. Additionally, the long-form response appears in select instances to capture insight on what KPIs and/or metrics employers might use to evaluate services, to identify what additional services employers might be interested in receiving, and to solicit general feedback on the Commonwealth's public workforce and economic development system.

Survey Participation

The team worked with the departments to identify and recruit businesses in alignment with the USD RUCA sampling approach for survey participation. To ensure that the survey would reach the intended audience and to improve response rates, KPMG coordinated with the departments to distribute an initial survey outreach communication that provided context to regarding the survey to encourage participation. The communication also included a web link (refer to Figure 4) to access the online questionnaire and a PDF attachment, which addressed Frequently Asked Questions (FAQs) to bring further clarity about things such as what information the questionnaire would collect (outline of the questionnaire), how long the survey might take to complete, and how the information would be used. Most importantly, the communication provided clarity as to who should complete the survey on behalf of the business. Since business entities may have different ways of tracking and reporting the requested information, employers were asked to designate the appropriate personnel to submit a response on behalf of the business based on their access and knowledge of the information requested on the form.

During the survey period, KPMG applied the Dillman Total Design Survey Method to improve the quantity and quality of survey responses, including the use of emails for survey reminders. KPMG drafted the survey communication and reviewed those with the departments. Survey communications were provided to the departments as Outlook File Template (OFT) files along with the approved distribution list and send using Maestro, which is a tool used to send mass listservs within Outlook.

Figure 4: Online Survey Materials and Participation Reminders Methodology



Sample Selection Procedure

Administering the business survey required identifying a sample of businesses. To serve as the sampling frame, the departments provided two datasets: CWIA & CWDS. The first capturing business information and the other containing employer service information. A complexity within the CWIA data is that it consists of FEINS having multiple location records. This ultimately made preparing the merge to the CWDS data less straightforward than anticipated. Ahead of merging these datasets, data preparation steps were taken to ensure a seamless merge.

KPMG adopted a stratified randomization approach for sample selection. This approach was used to select a representative sample that would preserve coverage of business types across four characteristics of interest. These characteristics are the 12 Industry Clusters defined by Pennsylvania[6]; whether the business operates primarily in an urban, suburban, or rural area; business size (employee count); and whether the business received any CWDS business services within the past year ("Engaged" or "Not Engaged").

Data Cleaning

The intended dataset before selection of the sample is one record per FEIN, with each record containing the relevant business characteristics. In the process of cleaning the CWIA data, duplicates and observations with no employer ID were identified. Duplicates were deemed to be likely due to data aggregation error and were dropped. As for the observations with no FEIN, these were removed from the analysis as there is no way to tie to a service record in the CWDS data and without the unique identifier, there would be no way to determine the correct contact information to engage in the survey. As for the CWDS data, the most recent service record per FEIN was kept in preparation for the merge.

Industry Clusters. Utilizing a crosswalk of industry clusters and NAICS codes, an industry cluster variable was attached by matching on the business's NAICS. While NAICS codes are traditionally 6-digit, the CWIA data contained both 5- and 6-digit codes. To assign an industry cluster to the 5-digit NAICS code, a zero was imputed to the end of code. NAICS code that did not have an industry cluster match were assigned to a thirteenth category labelled as "Other" for their industry cluster.

Business Size. The business size variable in the CWIA data recorded the number of employees in ranges: 1-4, 5-9, 10-19, 20-49, 50-99, 100-249, 250-499, 500-999, and 1000 or more. For

[6] From the Spring 2022 version prepared by the Department of Labor & Industry, Center for Workforce Information & Analysis.

FEINS with multiple locations, the ranges were combined across locations in a three step process. First, the midpoint of each range was determined (e.g., 14.5 for the range 10-19), then the midpoints of all locations for the FEIN were summed, and finally the range in which the sum lay was associated to the business overall.

As an example, suppose a business has three locations in the data with employee ranges of 5-9, 10-19, and 10-19. The midpoints of the ranges are 7, 14.5, and 14.5, which sum to 36. This lies in the 20-49 range, so the business has the 20-49 range associated with its total employment.

The data included 964 businesses with an employee count of 0. After consultation with L&I, KPMG agreed to drop these businesses from the sample due to the small size of this group of employers, and due to employment and job search services not being applicable to them.

Urban/Suburban/Rural. The sample was also designed to include representation from businesses serving urban, suburban, and rural areas of the Commonwealth. To achieve this, census tract-level Rural-Urban Commuting Area (RUCA) codes from the Department of Agriculture[7] were used. RUCA codes are reported on an ordinal scale from 1 to 10, with higher values representing more rural areas with weaker commuting patterns to urban areas. Census tracts with a population of zero are coded as 99 and were excluded from this analysis. KPMG rolled up the remaining census-tract level RUCA codes to produce an average value for each county.

Counties were then assigned a qualitative label of Urban, Suburban, or Rural through a two-stage process. If the average RUCA code was 1.0 to 1.10 the county was assigned Urban; the county was assigned Suburban if its average was 1.15 to 1.74; and it was assigned Rural if its average was 1.75 or greater. Six counties had average RUCA scores within the range 1.10 to 1.15 and were assigned either Urban or Suburban status based on consultations with KPMG staff who are Commonwealth residents. The results are included in the Excel file ***Average RUCA Codes by WDA.xlsx*** included with this report.

Once an Urban, Suburban, or Rural designation was associated with each County, each location record for a FEIN was assigned the corresponding label of the county for physical address in the record. In some cases, a FEIN location record had a value of “Out-of-State”, “Unknown Location” or “Statewide” and in these cases no Urban/Suburban/Rural designation was defined. Furthermore, FEINs whose only locations were out of state or unknown were excluded from the sample. For FEINs with a “Statewide” location, their Urban/Suburban/Rural designation was defined as “Other”.

Engaged/Not Engaged. After the CWIA and CWDS data were merged, businesses were grouped based on whether they are or are not currently or recently engaged with WED services. The period for recent engagement was no longer than a year. To determine that cutoff, the most recent Service Date was determined. The most recent Service Date in the data extract was November 2, 2022, so any service records between November 3, 2021 and November 2, 2022 were flagged as recent. If a service record was recent, the FEIN was defined by be engaged with business services, and otherwise was assigned a not engaged status.

[7] For description and access to the RUCA data file, see: USDA ERS - Rural-Urban Commuting Area Codes

Merging CWIA and CWDS Data

Once the business characteristic variables were created within the CWIA data, a single entry was kept per FEIN. For FEINs with multiple locations, the record containing the largest location-level employee count was preserved and if two or more locations were tied for largest then one was selected at random. Therefore, the single observation per FEIN will have location information from its largest location.

For purposes of constructing the business survey sample, only the most recent service record was kept for each FEIN. This was done during creation of the Engaged/Not Engaged indicator. Therefore, when merging the cleaned data sources the record merge was 1:1, although there were records from each source that did not merge. FEINs in the CWIA data that did not merge to the CWDS service record data are those businesses that never received business services within the 3-year period KPMG requested. In contrast, FEINs found in CWDS but not in CWIA are the result of a known issue in which there were transcription errors during manual entry of a business's FEIN into CWDS. Since these latter FEINs could not be validated, these mismatches were deemed as data entry issues and were dropped from the sample selection process for the business survey.

Sample Size Selection

Due to the relatively small number of unique FEINs in each category considered (industry sector, urban-rural, etc.), KPMG followed recommended sample size guidelines for small populations published in the academic literature.[8] These sources provide recommended sample sizes for a range of population sizes of up to 75,000 necessary to ensure robust statistical inference. In most cases relevant to this evaluation, the recommended sample size fell between 351-381 unique FEINs.

In determining suitable sample size, KPMG also factored in survey nonresponse rates under the assumption that smaller businesses would be less likely to respond. Specifically, the following response rates were assumed:

1 – 99 employees	10% response rate
100 – 249 employees	15% response rate
250 or more employees	20% response rate

With these response rate assumptions, in order to achieve a sample of 381 unique FEIN respondents a total of 3,810 would need to be requested to take part at a 10% response rate, or 2,540 at 15% response rate, and 1,905 at 20% response rate.

A stratified random sample was selected across industry clusters and business size, using 13 cluster categories (the Commonwealth's 12 industry clusters and "Other") and three size levels corresponding to the response rate assumptions (1-99, 100 – 249, and 250+ employees) for a total of 39 distinct strata. In the sampling process, each FEIN was assigned a uniformly distributed random decimal between 0 and 1. Within each strata, FEINs were sorted with this random decimal and a number of FEINs up to the recommended sample size determined by the population size and response rate were included in the proposed survey sample.

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[8] Krejcie RV, Morgan DW. Determining sample size for research activities. Educational and Psychological Measurement 1970; 30:607-610.
Draugalis JR, Plaza CM. Best practices for survey research reports revisited: implications of target population, probability sampling, and response rate. Amer J Pharma Edu 2009; 73(8): article 142.

Initially, this sampling process was planned to be conducted with recent and non-recent users of business services combined but recent users were a small percentage of all unique FEINs in the analytical file prepared by the data cleaning and merger process. Therefore, the methodology was adjusted to include all 13,247 recent users. With this change, an additional 47,451 non-recent user FEINs were also selected. The total proposed sample size was 60,698.

Demographics of Survey Respondents

Responses for the survey were collected over the period from January 30th, 2023, through February 24th, 2023. In total, 1,045 unique businesses responded, with 33 responding twice and one business providing 3 responses. Businesses who had used workforce services within the past 12 months comprised 558 (51.7%) of respondents.

For the 34 repeat responses, it was observed that the responses provided were generally consistent although not identical for the business demographics (industry, size, location, whether they had received services) while the services the respondents reported did vary. Due to the differences in the feedback received for these repeat responses and their small percentage among total responses, we have chosen to keep all 34 repeats in the analysis for their feedback on services received and service quality. The demographics of responding businesses are provided across three tables in this section, summarizing respondents based on the Workforce Development Areas in which their businesses operate, their industry, and their headcount.

Area of Operation. We note that Lackawanna County is the only WDA from which fewer than 5% of responding businesses have a presence, and only four of the twenty two WDAs have 10% or greater percentage among respondents (Central, Northwest, South Central, and Three Rivers). This confirms that the survey objective to receive feedback across all geographic regions of the Commonwealth was achieved.

Workforce Development Area	Responding Businesses Active in WDA	Percentage of (unique) Respondents Active in WDA
Berks County	70	6.7%
Bucks County	89	8.5%
Central	104	10.0%
Chester County	63	6.0%
Delaware County	61	5.8%
Lackawanna County	36	3.4%
Lancaster County	87	8.3%
Lehigh Valley	79	7.6%
Luzerne-Schuylkill Counties	88	8.4%
Montgomery County	82	7.9%
North Central	89	8.5%

Workforce Development Area	Responding Businesses Active in WDA	Percentage of (unique) Respondents Active in WDA
Northern Tier	64	6.1%
Northwest	114	10.9%
Philadelphia County	70	6.7%
Pocono Counties	54	5.2%
South Central	156	14.9%
Southern Alleghenies	97	9.3%
Southwest Corner	82	7.9%
Three Rivers	118	11.3%
Tri-County	99	9.5%
West Central	66	6.3%
Westmoreland/Fayette	94	9.0%

Three respondents did not provide a response to the question requesting that they list the counties in which their business was active and are not shown in the table below. Among the 33 businesses that provided multiple responses to the survey, 23 had their respondents consistently report the number of WDAs in which the business was active while among the remaining 10 responses differed. For this reason, all repeat responses were included in the table because they may reflect the range of business activity of different departments or service lines at these businesses. Respondents were also given the option to report activity that was “Effectively State-wide”, and if they did then they were included in the count of businesses with operations in all 22 WDAs:

Number of WDAs in which Business is Active	Count of Responses	Percentage of all responses
1	699	65.0%
2	112	10.4%
3	61	5.7%
4	45	4.2%
5	21	2.0%
6	22	2.0%
7	19	1.8%
8	5	0.5%
9	2	0.2%

Number of WDAs in which Business is Active	Count of Responses	Percentage of all responses
10	4	0.4%
11	3	0.3%
12	4	0.4%
13	2	0.2%
14	2	0.2%
15	2	0.2%
22	73	6.8%

Industry of Respondents. Respondents were distributed across the 12 industry clusters as shown below. Of the 285 respondents who reported an industry other than the 12 industry clusters, a number were still within those clusters. For example, 10 reported being in Manufacturing. When a manual response could confidently and unambiguously be associated with one of the 12 industry clusters, we did so and the values in the table below represent this assignment. When an assignment would be uncertain (e.g., for the 16 responding "Private") they were associated with the "Other" cluster. Therefore, some percentage of responding businesses listed in "Other" are in fact in one of the 12 industry clusters. To reflect this, we have reported that category as "Other or Unclear".

Industry Cluster	Respondent Businesses in Industry Cluster	Percentage of Respondents in Industry Cluster
Advanced Manufacturing	175	16.2%
Agriculture and Food Production	63	5.8%
Bio-Medical	10	1.0%
Building and Construction	107	10.2%
Business Services	76	7.0%
Education	71	6.8%
Energy	25	2.4%
Healthcare	132	12.2%
Hospitality, Leisure, and Entertainment	52	5.0%
Logistics and Transportation	54	5.2%
Real Estate, Finance, and Insurance	26	2.5%
Wood, Wood Products, and Publishing	32	3.0%
Other or Unclear	222	20.6%

Respondent Headcounts. The table below makes clear that the survey responses are dominated by small businesses, with 85.3% (891 out of 1045) unique respondents having 0 to 99 employees.

Employee Range	Respondent Businesses with Headcount in Range	Percentage of Respondents in Range
0 - 19	482	46.1%
20 - 99	409	39.1%
100 - 149	62	5.9%
150 - 199	20	1.9%
200 - 249	11	1.1%
250 - 499	32	3.1%
500 - 749	13	1.2%
750 - 999	4	0.4%
1000 - 1499	3	0.3%
1500 or more	9	0.9%

Survey Analysis Output Files

Respondent feedback from the survey has been collected in a series of Excel files to facilitate any future review or additional analyses conducted by the Departments. The filenames for each of the Excel files with respondent feedback is provided below, and their contents and key findings will be summarized in the results section that follows.

- Welcome to the Employer Feedback Questionnaire(1-1079)
- Respondents by County
- Service Satisfaction Results
- Service Qualities Results
- Strategic Challenges
- Human Capital Challenges
- Hiring Challenges
- Free Text Responses

Welcome to the Employer Feedback Questionnaire(1-1079). This is a copy of the full set of survey response data that was provided by L&I to KPMG.

Respondents by County. In the survey, respondents were asked to identify the counties in which their business operates from a checklist. They were allowed to select “Effectively State-wide”, in which case they were assumed to have a presence in all counties. This file counts how many businesses had activity in each county and is meant to complement the summary at the level of each WDA that is provided in this report earlier in this section.

Service Satisfaction Results. Respondents were asked to provide feedback on up to three services. For each service, they were asked four questions about the quality of services received: (1) did it meet their goals? (2) did it create value? (3) would they use it again? And (4) would they recommend it to others? Response options were arranged on a Likert scale with strongly agree, agree, neither agree or disagree, disagree, and strongly disagree. This file cleans up the response data and summarizes responses by employer size, for very small (0-19 employees), small (20-99), medium (100-249), and large employers (250+). Then, for each service type included in the survey, all responses for that service are provided on the other sheets. For example, all responses for Job Match services are on the "Job Match" sheet.

Service Qualities Results. Respondents were asked to provide feedback regarding the relative value they placed on each of seven qualities of service delivery: reliability, responsiveness, assurance, empathy, communication, access, and tangibles. They rated the qualities in two ways: assigning values summing to 100 (e.g., "budgeting" their importance), and by choosing a priority order from most to least important. Respondents were then asked several questions on a Likert scale for each of the service qualities. This file provides the results of both methods of assigning relative value in its "Value Assigned to Qualities" and "Priority of Service Qualities" sheets. In the final sheet, cleaned data from respondent's responses to the Likert scale questions and the services are given to facilitate any additional analysis of these data the Commonwealth may wish to perform.

Strategic Challenges. Respondents were asked to prioritize their strategic needs across 8 categories: Digital Enablement, Finance/Capital Investments, Human Capital, Market Success, Physical Infrastructure, Regulatory Environment, Strategic Growth & Planning, and Supply Chain. They were then asked if they had experienced opportunities or challenges in any of these areas, and separately on whether they had experienced challenges due to the COVID pandemic. The results are summarized across three sheets in this file alongside a suggested interpretation of findings from the data.

Human Capital Challenges. This file is structured similarly to the Strategic Challenges file, except that requires respondents to prioritize among 8 categories under for Human Capital. The categories are DEI, Development, Engagement, Hiring, Performance Management, Recruitment, Retention, and Workforce Reduction. As with the Strategic Challenges file, results are summarized across three sheets in this file alongside a suggested interpretation of findings from the data.

Hiring Challenges. This file is structured similar to the Strategic and Human Capital Challenges files, with 6 categories of opportunities and challenges for Hiring: Diversity and Equity, Employer Brand, Labor Costs, Labor Market Competitiveness, Skilled Labor, and Speed-to-Hire. In addition, respondents were allowed to select "Other" challenges or "None of the above." As with the other two Challenges files described above, results are summarized across three sheets in this file alongside a suggested interpretation of findings from the data.

Free Text Responses. Respondents were asked to provide free text feedback on several questions throughout the survey. Their responses to these questions are collected in this file. The sheet "Contents of this File" summarizes what information is contained here and where to find it. The "Business Info" sheet provides the respondent's business name, self-selected industry, and NAICS. Respondents had been asked if they were willing to be contacted for follow-up questions but no responses to that question were received. In the "Additional Feedback" sheet the responses to several questions are included: (1) what business services would be of interest if they were offered? (2) does their business use any performance indicators/KPIs and if so, which? (3) is there any additional feedback they would like to share?

Results of Survey Analysis

This section summarizes two key findings from analysis of the survey response data. Other findings from the survey are reported in seven Excel files provided with this Final Report: Survey – Respondents by County, Survey – Service Satisfaction, Survey – Service Qualities, Survey – Strategic Challenges, Survey – Hiring Challenges, Survey – Human Capital Challenges, and Survey – Free Text Responses.

Lack of Engagement/Excitement. Respondents rarely had negative experiences with services (see Survey - Service Satisfaction Results file), but at the same time they did not express strong feelings in favor. When asked if the service received met their goals or created value, almost as many responded "neither agree nor disagree" as responded with "strongly agree" or "agree" combined. The results for whether they would use a service again or would recommend it were similar, although those did produce slightly more "agree" responses. This may point to one of the factors behind the Repeat Business Customer rates that averaged 50% for Urban WDAs and 61% in Suburban and Rural areas, where the service provided was satisfactory and the employer is not unhappy, but nor are they excited by what they received and looking to take advantage of it again. It may be worth a future analysis to review those regions with higher Repeat Business Customer rates to understand if service satisfaction is driving their repeat engagement or if it is some other factor.

Employer Priorities for Services. When asked to prioritize seven qualities of service delivery, respondents strongly favored the Reliability and Responsiveness qualities over all others (see Survey - Service Qualities Results file). One aspect of this may be due to employers being active across multiple WDAs and experiencing differences in how areas conduct service delivery. As was noted above, 35% of businesses in the sample were active in at least 2 WDAs. Regional differences in how service delivery is conducted have the potential to cause confusion or frustration among employers who view services as coming from a single provider rather through 22 WDAs. This interpretation is consistent with feedback that was received during interviews with BSTs regarding misconceptions from employers on the type and purpose of services being offered. If correct, it further emphasizes the need for a consistent strategy and implementation of service offerings across the Commonwealth while still being flexible to the unique needs of each area.

Strategic Challenges. Businesses' primary strategic challenge was with human capital, as expected, but their next three priorities were in the areas of strategic growth and planning, market success, and supply chain. Supply chain disruption has been a common theme during the COVID pandemic in particular, and with lingering effects still felt as of the time of writing of this report. While strategic planning and market success are broader in scope than the business services currently most often used would be able to address, our Research Review has identified several initiatives within the business community that have the potential to serve employers on a broader, more strategic level. If the Departments pursue coordination with one or more of these initiatives, they may be able to support employers' other strategic priorities.

Regional Interviews

Complementary to the business survey, the staff interviews where used to gauge the perception of WED program staff as it relates to overall effectiveness of the business service delivery model, the provision of services, and challenges being experienced. To design and develop the interview instrument, KPMG leveraged the methodology described in the Business Survey Methodology section that was previously used to develop the survey instrument.

Instrument Development

The participants selected for focus group sessions were drawn from a representative sample using the same USDA RUCA approach described for the business survey. Additionally, KPMG worked with the Departments to help ensure that the staff participating in the interviews represent a mix of different responsibilities and years of experience. More specifically, the departments helped to identify and recruit staff from Rural, Suburban, and Urban areas of PA CareerLink® workforce and economic regions. L&I will also help to identify and recruit local Workforce Development Board Staff from each Rural, Suburban, and Urban areas. KPMG coordinated with the departments to identify contacts for participants for each session, and to schedule each invite.

Scheduling. KPMG aimed to conduct interviews in at least the majority of the 22 WDAs, after accounting for scheduling and availability of representatives from the WDAs, BWPO, PA CareerLink and their agency partners, and as required to realize a representative sample of WED program staff within the project timeline. In the early phase of interview implementation, KPMG prepared a grouping of WDAs based on regional similarities and differences in employment levels, industry, and population to ensure the first phase of interviews would capture a representative sample of all WDAs in the event a second phase of interviews was not scheduled. This approach was taken under the assumption that there may be variation in the types of services that PA CareerLink® offices provide to businesses (i.e., comprehensive versus affiliate services). By the end of the second phase of interviews, ending December 12th, 2022, all but two WDAs had been interviewed.

Interview Instruments. KPMG conducted the interviews in accordance with the interview instrument(s) approved by the departments. The process to design and develop the interview instrument is outlined in the Survey and Interview Design and Development Process section. Separate interview instruments were prepared for both Group 1 (regional leadership) and Group 2 (CareerLink staff and site managers) in order to accommodate differences in their job responsibilities and years of experience. Therefore, the objectives and nature of the discussions for Group 1 and Group 2 varied, where the aim of Group 1 was more strategic while Group 2

focused on the experience from staff from a daily operational perspective. A summary of the Group 1 and Group 2 session agendas are given in Figures 5 and 6 below.

Figure 5: Group 1 session agenda

Objectives

Gain an understanding of the following for the respective WDA:

- Organizational Structure of the PA CareerLink BST
- Strategic focus for the development of service offerings and segment engagement
- Operational Insights including infrastructural needs and lessons learned

Session Details

Date: N/A

Duration: 45 min

Participants: LWDB and BWPO Leadership

Topic	Description
Who We Are	• What is the perspective of the LWDB and PA CareerLink BST on their respective roles within Pennsylvania's public WED system? • What is the scope of services and value offered to businesses?
Who We Serve	• How are business segments defined, What are key trends and priorities for engagement and growth within each segment? • What are the opportunities and challenges that businesses hope to address?
Who We Provide	• What is the strategic focus for developing existing and/or new service offerings? • What is the strategic focus for evolving the way existing and/or new services are provided to businesses?
How We Deliver	• What are the strengths versus opportunities of the PA CareerLink BST for service delivery? • What are the gaps and/or constraints related to infrastructure (e.g., staffing, technology, other)? • What are the lessons learned in response to the COVID-19 Pandemic?

Figure 6: Group 2 session agenda

Objectives

Gain an understanding of the following for the respective WDA:

- Organizational Structure of the PA CareerLink BST
- Engagement with business customers
- Operational insights including infrastructural needs and lessons learned

Session Details

Date: N/A

Duration: 45 min

Participants: PA CareerLink BST Staff

Topic	Description
Who We Are	• What is the perspective of the PA CareerLink BST on their respective roles within Pennsylvania's public WED system? • What is the scope of services provided and value offered to businesses?
Who We Serve	• What are the key trends identified within each segment; How does engagement within each segment vary? • What are the opportunities and challenges that businesses hope to address?
Who We Provide	• What is the scope of services provided and value offered to businesses? • How are services provided to businesses (e.g., service delivery structure, referrals process, hand-offs)?
How We Deliver	• What are the strengths versus opportunities of the PA CareerLink BST for service delivery? • What are the gaps and/or constraints related to infrastructure (e.g., staffing, technology, other)? • What are the lessons learned in response to the COVID-19 Pandemic?

Facilitating Interview Responses. While focus groups can lead to enhanced insights due to the rich discussion that they tend to generate, there is also a risk of interview participants feeling less comfortable within a group setting; this can lead to limited engagement or less transparency for some participants. To overcome this barrier, KPMG leveraged best practices to encourage interview participants to engage actively and transparently. Among these included the separation of leadership from staff; maintaining transparency around the purpose and objectives of the discussion; socializing discussion topics with participants in advance of each session; using a digital collaboration platform to visualize key points made by participants during the discussion; controlling the number of participants involved in any given session; and including a time buffer to allow for adequate time to develop the discussion.

All interviews consisted of virtual facilitation methods. For each session, there was a lead facilitator directing the interview. In some sessions, there was also a co-facilitator to support the lead facilitator by recording notes during the session and as needed. Notes were captured and displayed live for participants to view using Mural, a digital collaboration platform that enabled the notes to be visualized to encourage engagement. Immediately after each session, notes were translated from the Mural boards into a standardized template via Excel to aid recall and ensure the accuracy of the data recorded.

Managing the perceptions of stakeholders that may influence critical aspects of the interview process and the expectations of WED program staff who were selected to participate in the interviews was important to drive participation and successful interview outcomes. Prior to conducting the interviews, KPMG worked with the departments to facilitate outreach to survey participants. This included briefing the WDA directors on the overall initiative, as well as drafting language for communications with stakeholders to describe the request for participation from them and/or their staff. This helped to clarify participant expectations to the participants by communicating the purpose of the interview, providing interview questions for participants to preview, and enabling participants to share potential questions related to their participation. KPMG worked with the departments to identify the key stakeholders to whom outreach needed to be conducted and to develop the messaging around survey communications.

Interview Timeline

Interviews were scheduled with all twenty two workforce development areas in three phases, with the first phase lasting October 4th through October 21st, 2022, the second phase between November 29th through December 12th, 2022, and a third phase for the remaining two regions on January 12th, 2023. Interviews were structured as focus groups with between 4 to 12 participants in each session.

For each participating WDA, KPMG conducted two separate focus groups. Group 1 sessions included local WDA and BWPO leadership while Group 2 sessions included PA CareerLink Staff and agency partners such as representation from DCED, local Veterans Representatives, Office of Vocational Rehabilitation (OVR), and others.

Focus groups or group interviews were conducted using a semi-structured interview format. Semi-structured format is useful to ensure that large quantities of data ca be captured and aggregated in a methodical way to enable data comparison, aiding interpretation of the data. While a semi-structured format relies on a set of pre-defined survey items (high-level discussion topics and supporting questions), it also enables flexibility regarding the sequence in which survey items are introduced and or the way in which these items are framed. This allows the interviewer to redirect as needed to capture additional insights, while a completely structured format might not enable the interviewer to adapt to a participant's deviation from an anticipated response. This helps to enhance the quality of insights that are captured.

Interview Findings

Key insights synthesized from interviews with PA CareerLink business service teams can be summarized across the following categories: Advancing a Shared Mission, Refining Organizational Structures and Operations, Shaping Employer Perception, Enhancing Technology and Infrastructure, Inspiring Innovation in Response to the Covid-19 Pandemic, Reflecting on Best Practices.

Advancing a Shared Mission. Participants were asked to define Pennsylvania's public WED system based on their understanding and role within the system. While various stakeholders may define the system broadly and perceive their respective role and/or that of the organization that they represent distinctly, there was consensus and buy-in around a shared mission. This shared mission is best described as an effort to promote the coordination of public and private-sector partnerships across the state and within targeted regions to deploy resources for the aim of workforce and economic development within Pennsylvania. In the

most fundamental sense, this translates into providing the programs and services that align jobseekers to employment opportunities while strategically ensuring that the state can continue to attract and retain employers that offer meaningful employment across prioritized industries. It is noted that stakeholders primarily overseeing workforce and/or economic development initiatives may represent separate entities. However, the idea that both workforce and economic development efforts should be seen as complementary instead of competing objectives is clear.

The system is supported by a diverse and dynamic stakeholder ecosystem. This ecosystem includes the local workforce and economic development boards; the PA CareerLink Business Service Teams (inclusive of agency partners, such as the Office of Vocational Rehabilitation (OVR), the Office of Veterans Affairs, and others which may vary across local workforce development areas) the Department of Community and Economic Development (DCED); and other public and private agencies (e.g., Chamber of Commerce, Planning Commission, Primary and Higher Education.) Heavily emphasized is the importance of partnership and collaboration across the various stakeholder groups. For example, DCED is seen as a primary partner, critical to enable the success of workforce development initiatives. For instance, DCED offers a range of services to employers to support their workforce development needs (e.g., DCED oversees the Engage! program and provides consultations for the Partnership for Regional and Economic Performance or PREP). DCED provides labor market data which helps to inform service offerings. Additionally, DCED is recognized as playing an important role in cultivating relationships with local employers to drive engagement with PA CareerLink business service teams.

Organizational Structure and Operations. [Placeholder –Describe the general organizational structure of the BSTs, noting key variations across the state; Share insight on practices related to the coordination of BST staff and agency partners to deliver services]

[Placeholder for graphic on organizational structure of BST]

[Another challenge mentioned among groups was communication. For large counties, the size can pose a challenge in making connections and communicating effectively. Poor communication can negatively impact coordinated outreach by duplicating effort and frustrating employers. In addition, Southeast WDA stated that the Governor's Action Team, the group that engages with PA businesses, rarely connects with them, only on "big" projects. The Action Team mainly focuses on pulling together the financial aspect, but not the workforce. They feel as though this could be a missed opportunity.]

[Southern Alleghenies WDA ensures that all BST individuals have the same training across the region, such that the team has the tools and resources to market and conduct outreach in a consistent way through the use of PA CareerLink services. Southern Alleghenies emphasized that employer services training was the key to enabling consistency. They have pulled partner agencies into this training in order to provide them with the tools to talk to external agencies. The WDA also tracks and reports the percentage of employers using CareerLink against the base number of employers. They plan to release a new report that incorporates services on both employers and job seekers, combining two reports into one to share with both employers, administration, and partners.]

Shaping Employer Perception. Participants were asked to provide insight into how employers generally perceive Pennsylvania's public WED system. Responses were consistent across local

workforce development areas that employer perception remains a critical barrier to expanding the reach of employer engagement. Important to note, feedback reported across local workforce development boards suggests that employers that have engaged with the state to receive services are generally satisfied with the services provided. However, there are several opportunities to address employer's overall level of understanding of Pennsylvania's public WED system as a whole and its value proposition to employers. Foremost, many employers demonstrate a lack of understanding of the purpose of the system or the collaborative network of public and private partners that deliver the system. Employers may recognize the PA CareerLink as an entity that provides public services but fail to connect it to the broader public WED system. Additionally, they may not distinguish the various agency partnerships that are represented. Commonly, there is a lack of awareness and clarity around who the system is meant to benefit (both job-seeking individuals and employers alike). There is also a lack of awareness and clarity about the scope of services offered to employers via the state. For employers, the delivery of services across the state can feel siloed and inconsistent. Employers may be ignorant or confused about the steps required to engage with the services that are offered. For certain services, such as On-the-job Training Contracts and various programs offering grants, state reported employer feedback suggests that the process to engage is too confusing and overly bureaucratic. This may discourage employer participation, even if they do recognize the potential value of the program. Surprisingly, many employers may be unaware that these services are offered via the state for free. Another major barrier is the tendency for employers to improperly attribute the PA CareerLink to an "unemployment office" with the accompanying belief that they primarily serve underqualified job seekers (i.e., low skills, no to minimal educational background, criminal background, etc.) with unemployment claims and/or welfare assistance. This assertion is grossly incorrect, since the PA CareerLink serves job-seeking individuals representing a range of professional and educational experience (i.e., uneducated, GED or Highschool Diploma to PHD.) Lastly, the overall perception of employers as it relates to the perceived quality of services that they do seek, is largely dependent on the nature of the business and their motives for solicitation of services.

Two key strategies were consistently identified to help manage employer perception as it relates to the above. These include emphasis on direct outreach to employers to cultivate strong relationships and marketing efforts. As stated, fostering direct relationships with employers is seen as critical to managing employer perception for several reasons. Foremost, it enables targeted outreach to employers and a more direct line of communication to consult with the appropriate personnel within the business. This can yield a more precise understanding for the actual needs of employers, helping the state to best align the business to services. Anecdotal evidence from across workforce development areas suggests that an employer that has a direct relationship with the state may be more receptive to repeat use of services. This may be the case, even if the employer has had a prior negative experience with receiving services from the state. An explanation for this may be that a direct relationship between the state and the employer may correlate with the business's assurance with state programs and services. In addition to being able to better align the needs of the employer to meaningful services, the state is also better positioned to identify and address other concerns that the business might express to overcome potential barriers to engagement. Important to note, turnover can jeopardize the relationships that the state has built over time particularly

when the state relies on a close relationship with a single point of contact (e.g., human resources representative). To foster these relationships, the PA CareerLink business service teams may conduct considerable outreach to businesses. Some examples include direct or indirect outreach via phone, email, site visitation, and hosting or participating in community events to promote state services. Additionally, the PA CareerLink business service teams routinely rely on their network of agency partners to establish and manage relationship with employers. In instances where a business engages with the state via a third-party vendor, this may pose a barrier to the state's ability to develop a direct relationship with the employer. For example, many large businesses rely on staffing agencies to manage their recruitment and hiring efforts. The PA CareerLink business service teams may coordinate indirectly with the business via the third-party vendor to post job listings to the PA CareerLink site or to review job applicants. This intermediary relationship can distort the employer's perception around the quality of state programs and services when pain points arise due to faulty hand-offs or errors produced by the third-party vendor that are not obvious to the employer.

Secondly, marketing efforts are identified as being critical to influence the perception of employers related to state programs and services. Marketing efforts vary across local workforce development areas. The causes for variation in marketing approaches was namely expressed as the following. The geographic characteristics of each local workforce development area, such as the degree of urbanity as compared to the ratio of PA CareerLink comprehensive offices and availability of staff may play a role. For example, while less urban areas have suggested a higher rate of success with online marketing tactics such as the use of online platforms and social media sites (e.g., YouTube, Facebook, Instagram, Twitter, etc.), more rural areas may not see the same potential. This could be due to challenges with physical infrastructural that result in poor internet coverage throughout the area, which can impact employers in several ways. It can directly bar them from engaging with services primarily administered online and/or impact their perception around the quality of the services. A well noted example is this effect on in-person, virtual, and/or hybrid job fairs/recruiting events. In rural areas with limited internet connectivity, online promotion may not be an effective solution to recruit job seekers to attend. Instead, the state may opt to promote services via billboards, placement of marketing materials at local vendors, door-to-door outreach, and by hosting or joining events within the community. While this can be a challenge requiring greater persistence in rural areas, anecdotal evidence across more rural local workforce development areas shows that this can be a necessary alternative. Furthermore, jobseekers may be discouraged to attend an online or hybrid event if they do not have reliable access to internet service. In turn, low participation rates on part of job seekers can impact the quality of outcomes for participating employers. Lastly, the availability of funding and other resources to support marketing was given as the biggest constraint across local workforce development areas though groups consistently acknowledged the importance of marketing.

Enhancing Technology and Infrastructure

The state primarily relies on two different systems for data management. These include CWDS, both legacy CWDS and CWDS 2.0, as well as Executive Pulse. Similarly, both systems are used to record and report on information related to the delivery of state services. This may include, but is not limited to, data on employer outreach, case notes for employer site visitations, labor market data, and ad-hoc reporting. While CWDS is commonly used across workforce

development partners (i.e., the PA CareerLink business service teams and local workforce development boards that oversee them), Executive Pulse is uses almost exclusively by economic development partners (e.g. DCED). Overall, both tools meet the general data management needs for the state. However, there is substantial opportunity to improve upon the implementation of both systems.

- **User Interface:** There is a one-way data feed between Executive Pulse and CWDS. Information can be shared with CWDS from Executive Pulse but not vice versa. This poses a limitation when not all stakeholders have complete access and or knowledge of how to use both systems. Consistent feedback across the local workforce development areas reveal that CWDS does not have an intuitive, user-friendly interface. Though the PA CareerLink business service teams across the state all implement CWDS, the teams routinely struggle with the systems implantation despite the availability of training. Most recently, the state has begun a transition from legacy CWDS to CWDS 2.0. In some areas, both systems are still being used which creates a challenge in that the information available is not fluid between both versions of the system. Generally, CWDS 2.0 is found to be more intuitive and user-friendly than legacy CWDS, though CWDS no longer includes some features found to be valuable (e.g., search function.)
- **Inconsistence Use Amongst Stakeholders:** There is a lack of consistent use of the Commonwealth system by employers across the state. CWDS tracks data on registered employers that have created a user profile. However, not all employers across the state use the system. Those employers that do use CWDS may lack basic understanding of how to use the system appropriately or they may not see the value in engaging with the system to contribute labor market data on a consistent basis. For example, employers do not always follow through with documenting service outcomes in CWDS, such as reporting a decision to hire a job applicant. Instead, some employers may request that the PA CareerLink make updates within the system on their behalf. Feedback shows that this may be a greater challenge amongst private sector versus public sector employers. While CWDS enables ad-hoc reporting for metrics such as employer penetration rates, this metric is distorted by inconsistent use of the system across business stakeholders.
- **Data Reflects Limited Insights:** A key use case for CWDS is for the state to document outreach to employers. A pain point commonly reported across workforce development areas is that interactions cannot be recorded in CWDS if the employer elects not to use the services that are recommended. This distorts the accuracy of employer penetration rates since all outreach is not reflected. Additionally, in many instances, the insights captured in CWDS do not showcase the full scope of effort associated with outreach to employers.
- **Training:** Commonly, training on CWDS is delivered as part of initial onboarding. Additionally, ad-hoc training is offered which may include a designated resource to consult for guidance on how to execute the various system functionality, as well as training assets (e.g. step-by-step job-aides, etc.) Generally, the combination of both is delivered consistently across the PA CareerLink and training assets are found to be of a good quality. However, in some instances, training is not always delivered to agency partners. Additionally, efforts to revisit training when required can be seen as time consuming. Various functionality beyond the basics within CWDS may not be used routinely by

members across the business service teams. Coupled with a user interface that is not particularly user-friendly, it is easy to forget aspect of the training.

Inspiring Innovation in Response to the Covid-19 Pandemic

Across local workforce development areas, the state's response to the Covid-19 Pandemic saw innovations in several key areas. These include services, marketing practices; and efforts to meet operational needs internally around communication, coordination, and collaboration. A key trend across the state was the emergence of virtual services. Leading examples includes a shift from solely in-person to both online and hybrid formats for services such as job fairs, employer consolations, and training. Most of the feedback from across the state concludes that the introduction of virtual services has had a positive impact on employers, many of which have also shifted to virtual or hybrid work environments, by offering greater flexibility. To support this transition, the PA CareerLinks have had to adopt a culture that is receptive to virtual technology, as well as identify and address the needs of those jobseekers who may also require assistance with overcoming potential barriers (i.e., computer literacy and access to technology.) For instance, the PA CareerLink serving the Southwest Corner workforce development area increased access for both employers and job seekers, alike, by introducing a new service, the "CareerLink studio." The CareerLink is an in-person workspace that offers employers and jobseekers access to computers, virtual engagement technologies, and internet connectivity so that they can participate in the applicant screen and interviewing process respectively. The PA CareerLink serving the South Central workforce development area has seen success, since introducing virtual reality technologies to enhance their training programs. The PA CareerLink serving the Northern Tier workforce development area created a YouTube page that features employer collaborations, spotlights, and playlists. These playlists, in particular, are useful in that the video content produced can be segmented by employer type and need. The PA CareerLink serving the Westmoreland-Fayette workforce development area has automated their process for employers to sign and date contracts. Ultimately, this minor adjustment streamlines the process and creates a sense of convenience for employers. Lastly, PA CareerLink business service teams across the state have implemented virtual and hybrid job fairs and recruiting services. Success across the state has varied by local workforce development area, potentially due to a range of factors. Some of these factors may include variations in employer receptivity to a virtual environment, digital literacy levels for prospective employers and jobseekers, challenges related to physical infrastructure that limit access to internet connectivity, among others. Despite these potential barriers, the overwhelming opinion is that virtual and hybrid services offer worthy benefits and are here to remain.

The state has also adjusted marketing practices to include greater emphasis on online and virtual outreach. For instances, local workforce development boards across the state have begun to experiment with the use of online content engagement platforms (e.g., Youtube) and social media (e.g., Facebook, Instagram, Twitter, etc.), as well as radio, streaming services, and local television. In addition to outreach, these tools are also being used to introduce complementary services such as online newsletters and podcasts where employers can go to learn about how PA CareerLink can provide assistance and the various services they might offer. There is wide variation in how these marketing tactics can be employed, as well as diversity in the employer audiences targeted across the state. While this is described as a continuous learning process, many of the PA CareerLink business service teams have demonstrated

successful employer engagement. Overall, virtual marketing tactics may be seen as complementary to the more traditional in-person practices based on the receptiveness of local employers, instead of being used as a universal alternative.

Lastly, the Covid-19 Pandemic created a need for many of the PA CareerLink business service teams to re-evaluate their internal operations. A general finding included a need for more agile service delivery and the reliance on increased communication, collaboration, and partnership between the various entities making up the PA CareerLink business service teams and their community partners to accomplish this. In addition to restructuring the cadence and or structure of various internal meeting forums, many of the teams use virtual collaboration, such as shared drives, to improve the ease and consistency of information sharing.

Reflecting on Best Practices

Across the state the PA CareerLink business service teams have experiment with different aspects of service delivery to employers. The following highlights things that may be practical to implement across other workforce development areas based on the success stories the state has seen so far.

- **Enhancing Employer Outreach:** The PA CareerLink serving the Norther Tier workforce development area described success with its implementation of a new complementary service, the Business Toolkit. The toolkit helps to support discussions with employers during site visitations and consultations. The toolkit includes resources to help staff navigate discussions with employers, as well as leave behind resource to educate employers on the role of the PA CareerLink and services available to them. The toolkit is updated on an ongoing basis. In addition to helping to strengthen relationships with employers, the toolkit helps staff to relay consistent and complete information to employers during site visitations and consultations. Additionally, the team provides a newsletter to employers which spotlights an employer service each month. The team pulls a list of all employers from the past year that are active from CWDS, as well as add new employers on a monthly basis. The monthly report generated by the email marketing service MailChimp provides important insights, including information on sent, opened, delivery, and click through rates.
- **Collaboration within Education:** The PA CareerLink serving the Southeast workforce development area has emphasized collaboration within public education to create a recruitment pipeline. For instance, Lehigh County provides kiosks in local area high schools for career and training opportunities. In addition, Philadelphia County has built a non-traditional apprenticeship unit (Earn and Learn) and continues to expand the model within the city to get employers more engaged. Philadelphia County also features the Apprentice Navigator program to foster apprenticeship growth and opportunities.
- **Selective Recruitment Events:** The PA CareerLink serving the Lancaster local workforce development area experimented with hosting a drive through job-fair. The team created booklets featuring employers that purchased an advertisement for the event. The booklet included information on job openings and employer contact information. Job seekers where scheduled for consultations with PA CareerLink staff who discussed CareerLink opportunities and provided jobseekers with the booklet, employer donations, and CareerLink swag. The event was well attended by job seekers from within the community and students representing local area schools. Additionally, the team has begun to emphasize more industry specific recruitment events promoted to jobseekers with target

skills and employers with target positions. Though the events are much smaller in scale than traditional recruitment events, the results have yields more qualified candidates and employers seem pleased.

Quantitative Study

The Quantitative Study includes two components, a five-year economic forecast, and standards development using key performance indicators (KPIs) for business service delivery, that together provide a quantitative perspective and context to the qualitative findings from the research review, business survey, and regional interviews. The economic forecast and KPI metrics were both calculated statewide and for each of the 22 WDAs.

Standards Development

The Standards Development component of the evaluation is conducted through a retrospective analysis of business services provided by the 22 WDAs over the three year period November 3, 2019, to November 2, 2022. KPMG proposed in its Evaluation Methodology & Tool deliverable to evaluate performance using the market penetration rate and repeat business customers metrics. Market Penetration Rate (MPR) is defined as the percentage of employer establishments that received or are receiving core business services in the current year. Repeat Business Customers (RBC) is defined as the share of employer establishments that received core business services during the most recent rolling 12 month period (November 3, 2021, to November 2, 2022) among all establishments who received such services any time within the last three years. Both metrics are recommended for use by the Department of Labor as measures of effectiveness in serving employers.[9] All performance metrics will be evaluated statewide, and individually for each of the 22 WDAs.

In addition to the two metrics initially planned, at L&I's request KPMG added a third metric called the employee-weighted market penetration rate (EWMPR). This metric differs from MPR by attempting to account for the percentage of jobs, rather than percentage of employers, that are impacted by business services by recognizing that business services teams may have strong relationships with the relatively small number of large employers in a region, which would reflect in a low MPR due to few businesses being served and yet a high EWMPR due to a high percentage of all employment coming from businesses that were served.

Description of Data Sources

Sample selection for the business survey and the retrospective analysis both required handling two datasets: CWIA and CWDS. The CWIA data (~370K records) provides a list of PA businesses and their business characteristics (industry classification, size, location, contact information). For businesses with multiple locations, this dataset reflects all records of a business's location. The CWDS data (~630K records) comprises 3 years' worth of service level information (date of service, type of service provided, and service location). These two datasets can be merged on employer ID to have both business characteristic and service level information for a given business.

Missing Data in Sources

Missing Point of Contact. During KPMG's review and validation of CWIA and CWDS data, it was found that the email address for a business's point of contact was missing from most records. In

[9] See for DOL guidance on performance metrics: WIOA Performance Indicators and Measures | U.S. Department of Labor (dol.gov)

the CWIA data file, 68% of FEINs did not have a single location with a point of contact email address. Among those businesses with at least one CWDS service record in the 3 year analysis period, 44% still did not have a point of contact email address. This would present challenges for constructing the business survey sample.

Incorrect FEIN Entry. In the CWDS data file it was observed that there were service records for FEINs that did not exist in the CWIA data file. KPMG and the Departments confirmed that these records were documenting a service that was provided, but the recipient of that service (i.e., the correct FEIN) could not be determined with certainty from the available data. It is likely that many of these incorrect entries were the result of a typo during manual entry of at least one of the numbers of the intended FEIN. Such records are referred to as invalid entries for the remainder of this report, and similarly CWDS service records for which the FEIN did exist are referred to as valid entries. All invalid entries were set aside as a separate data set to be used in estimating a modified version of the market penetration rate metric.

Methodology for Handling Missing Data

KPMG contacted the Department to see if there were any additional contact fields that could be leveraged. It turns out that the CWDS data contained additional email fields that KPMG had originally not had access to. The updated CWDS data was provided so that KPMG could merge with the sample of businesses selected, ultimately allowing us to arrive at a revised number of 30,898 businesses with email information.

As for the invalid FEIN entries in the CWDS data, these records were set aside in a separate file for use in our modified metrics calculations. KPMG proposed utilizing these invalid FEIN entries to arrive at an upper estimate for the unbiased market penetration rates. This will be further discussed later in this section.

Placeholder: "Explain the 'modified' MPR calculation and link it to imputation of missing data. Explain that a similar process was not used for RBC because too many fields would need to be imputed relative to the information available, reducing confidence in the output."

Merging the CWIA and CWDS Data Files

Merging CWIA and CWDS Data. Unlike the process used for the business sample, all service records in CWDS were merged to the CWIA file during creation of the standards development analytical file. For records that had CWDS level information and not CWIA, those records were set aside in a separate file for use in the adjusted metric calculations described later in this section.

Associating Businesses to WDAs. All performance metrics are being calculated for each of the 22 workforce development areas (WDA). A business is included in a WDA's metrics if any one of these three criteria applies: (1) Business has at least one location within the WDA's counties; (2) Business is classified as statewide; (3) Business has previously been provided services by a CareerLink in the WDA.

The process used to associate FEIN locations to counties is described in the Sample Selection Procedure section above. KPMG prepared a crosswalk from counties to WDAs to create indicators for whether a business would be included in a WDA's metrics. FEINs with multiple locations were associated to a WDA if at least one of the FEIN's locations was associated through any of the three criteria.

Additional Data Cleaning and Preparation. After the merge, the WDA indicators were adjusted for instances in which businesses without a known location in a WDA received services from

one. From there, a time since service variable was created for records containing a service record. A separate indicator for each FEIN was created if the service was provided within the last 12, 18, 24, and 36 months.

Employment is tracked in the CWIA data file on an ordinal scale with a range of employees given rather than an exact count. The ranges included in the data file are 1-4, 5-9, 10-19, 20-49, 50-99, 100-249, 250-499, 500-999, and 1000 & over. In order to estimate total employment at an FEIN, a value equal to the midpoint of each interval was assumed and these values summed across all locations associated with the FEIN. For example, if an FEIN had two locations with employment reported in the ranges 10-19 and 20-49, then their total employment would be defined as (10+19)/2 + (20+49)/2 = 14.5 + 34.5 = 49. Fractional totals were rounded up to the nearest whole number.

Calculating the Performance Metrics

Market Penetration Rate (MPR). Market penetration rate is defined by USDOL as the percentage of employers using services out of all employers in the state in the most recent 12-month period. A WDA-level MPR was additionally defined as the percentage of all employers receiving services out of all employers with business activity in that region in the most recent 12-month period.

$$\frac{Number\ of\ unique\ FEINs\ that\ received\ services\ in\ past\ 12\ months}{Number\ of\ unique\ FEINs}$$

For purposes of this analysis, business activity in a region was determined by the business's FEIN having at least one record in the CWIA data file with an address in a county for that region, or if the FEIN received business services from the region regardless of its locations' addresses. Some locations in the CWIA data file are recorded as being located "statewide" and may not have had a street address. If such a statewide business had no other locations in the CWIA file and no service records from CWDS, then it was not included in the calculations for any region-level metrics due to an inability to associate it to one or more regions. This acknowledges while a business may be considered statewide, it does not necessarily mean it is active in every WDA. Before computing MPR, the merged dataset was reduced to 1 record per FEIN. The creation of the WDA and time-variable indicators were then leveraged to arrive at the count of unique businesses who received services in the past 12 months (numerator) and the number of unique businesses (denominator). Dividing the numerator by the denominator gives us the MPR for each WDA.

Modified Market Penetration Rate Using Invalid Entries. As noted in the Missing Data section above, there were a significant number of invalid CWDS service records in which the business's FEIN was entered incorrectly and did not correspond to a record in the CWIA data file. These service records were set aside and not included in the MPR calculation described above. The modified method described here imputes the proportion of these service records that were provided to a business that had not previously received services.

The methodology behind the modified MPR calculation comes from the recognition that some percentage of invalid service entries will be for businesses that have not received a service recorded in a valid entry, and the percentage of businesses that have received a service recorded by a valid entry is equal to the MPR. It was assumed that invalid entries are the output of independent and identically distributed random events drawn from a distribution where the probability of an invalid entry being associated to an FEIN that had previously received services from a region is equal to that region's MPR.

For example, if a region has an MPR of 10% and there are 1000 unique FEINs among the invalid entries for that region, the modified MPR assumes that 10% of those invalid entries are repeats of FEINS already found among valid entries. Consequently, the formula for the modified MPR can be represented by this equation, where "MPR" is the market penetration rate calculated using only valid entries:

$$\frac{(\#\ Unique\ FEINs\ w/valid\ entries) + (1 - MPR)(\#\ Unique\ FEINs\ w/invalid\ entries)}{Number\ of\ unique\ FEINs}$$

This estimate is only adding to the number of businesses who received services. The size of the population of businesses who could be served is kept the same. All in all, what this modified MPR is capturing is the upper bound of the unbiased MPR. The Appendix of the Performance

Metrics showcases the magnitude of MPR Modified in relation to its MPR counterpart, showcasing the number of additional businesses served. This ultimately increases the numerator for this metric, while keeping the number of businesses in region untouched.

Repeat Business Customers (RBC). Repeat Business Customers metric is defined by USDOL as the percentage of employers receiving services in a given year who also received services within the previous three years. This metric was also defined at the regional level by requiring that the services received in the given year and within the previous three years both come from the same WDA. As an example, an FEIN with a service record from one WDA within the past 36 month period and who had another service record that was within the past 12 months, but from a different WDA, would not count as a repeat business customer in the regional metrics.

In preparing the CWDS data file for analysis, the data were transformed into a service event format: a single service record was kept per FEIN and region, per day, so that a business receiving multiple services in one day would not count as a repeat customer for a region. After this step was complete, for each WDA a count of the number of service events was created for each FEIN to capture the number of times that business received services from the WDA.

To compute RBC for each WDA, the CWDS data was restricted to service records from that WDA. A repeat business customer indicator variable was created for each FEIN to track if it received a service in the past 12 months and received more than one service in the past 3 years. The number of unique FEINs that satisfy this indicator condition is the numerator in the equation for the RBC metric, and the denominator for the metric is equal to the number of unique FEINs that received at least one service within the past 3 years.

Employee-Weighted Market Penetration Rate. In addition to the two metrics initially planned, at L&I's request KPMG added a third metric called the employee-weighted market penetration rate (EWMPR). This metric differs from MPR by tracking the percentage of jobs, rather than percentage of employers, that may be impacted by business services provided to employers. It also recognizes that business services teams may have strong relationships with the relatively small number of large employers in a region, which would be reflected by a relatively a low MPR but a high EWMPR due to a high percentage of all employment coming from businesses that were served.

To perform the calculation, the same FEINs that were used for the MPR calculation are included in both numerator and denominator, but rather than counting the number of unique FEINs instead their total employment is used:

$$\frac{Total\ employment\ at\ unique\ FEINs\ that\ received\ services\ in\ past\ 12\ months}{Total\ employment\ of\ unique\ FEINs}$$

The count of total employment includes employees who may be based outside of the WDA. The count in numerator and denominator includes employees at each FEIN that may be located outside of the WDA's boundaries because there is uncertainty in which employees may be impacted by services provided, as it is not guaranteed that all employees based in the WDA will be affected, or that none outside the WDA will be affected. Due to this uncertainty, the EWMPR was calculated using total employment for each FEIN rather than a subset of employment based on geography.

Retrospective Analysis Findings

Results of the performance metrics can be found in the Appendix Section. On the surface, results of the MPR vs EWMPR appear conflicting. Across the WDAs, the range for MPR was from

4%-28% while the range for EWMPR was from 88%-95%. The considerably higher percentages for EWMPR speaks to how active employers with large employee counts are. It appears that the lower percentages for MPR is a result of many small employers not being active in WDAs. As a result, these two performance metrics together provide a clearer picture of the activity of large and small employers. Just the proportion of employers active in a region does not capture the level of employment engagement and activity within a region.

The RBC metric across the regions conveys promising results. There is a healthy percentage of businesses who received services in the past three years coming back for services in the past 12 month rolling period. Ranges across the regions are from 40%-82%, ultimately showcasing how satisfied businesses are with the services provided. The proportion of businesses coming back for more services is a testament to the quality of services being provided.

Lastly, the regions that are consistently performing well are Lackawanna, Northern Tier, and West Central. These specific WDAs are in the high end of the ranges for each of the three performance metrics. On the other hand, regions that are in the low end of these ranges are Chester and Delaware.

Economic Forecasting

As part of the current and future economic characteristics research deliverable, KPMG conducted a five-year projection of employment for each county and advanced industry grouping in the Commonwealth. Using publicly available employment data from the Bureau of Labor Statistics and time series modeling to capture historical employment patterns, the team generated forecasts through Quarter 4, 2027. In this section we describe the forecasting methodology, data, and limitations of each, before presenting the forecast results.

Methodology

KPMG considered two approaches to forecasting, both of which are standard in economic projections: regression-based dynamic forecasts and time series-based forecasts.

Broadly, a regression-based approach first aims to statistically estimate the parameters that govern the relationship between various explanatory variables and the outcome of interest (employment in this case). For Pennsylvania employment, these variables may include macroeconomic indicators such as national GDP and inflation, as well as local factors such as population, migration, and the local regulatory environment. Then, the researcher uses forecasted values of these explanatory variables (which may be acquired from third-party forecasters, calculated based on theories of relevant dynamics, or forecasted some other way) in conjunction with parameters estimated from the first step to generate the forecast of the outcome of interest.

We ultimately rejected this approach, as its data requirements were significantly more onerous: it would have required much more extensive collection efforts (to an extent that would be unrealistic given the project timeline) and potential expenses to purchase relevant proprietary datasets and/or input forecasts. Some of the explanatory variables that we would wish to include in a reasonably complete model were also unlikely to be readily available at the industry-by-county level of granularity that we aimed to forecast and would require further work to calculate or impute.

The time series approach, which we decided to use, aims to identify patterns from the historical fluctuations of the outcome of interest and characterize it by a flexible set of parameters, which may include monthly/quarterly/annual seasonality, autocorrelation (the degree to which the

outcome tends to be correlated with past values of itself), and persistence of one-time shock events. The implicit assumption is that these historical fluctuations fully capture the underlying effects of other economic determinants that the regression approach would explicitly try to estimate.

Time series forecasting is performed by one-step-forward iteration. In this method, the estimated time series model is used to first generate a prediction for the immediate next period in the future, and then the original data is extended by that predicted value and the process repeated to forecast further out into the future. This method is computationally more intensive than linear regression but has less-demanding data requirements that is also able to leverage the industry-by-county level granularity of employment data, where available. Specifically, we estimate autoregressive integrated moving average (ARIMA) models, fit through a search algorithm (the *auto.arima* package in R[10]) that selects the best-performing ARIMA model in terms of historical predictive ability and model parsimony. Each model accounts for quarterly seasonality.

As employment data are still being influenced by effects of the COVID-19 pandemic, we additionally introduced an adjustment to our forecast. Simply estimating the time series model on all available data (up to Q1 2022 at time of this project) could generate bias in the near-future employment projections. We instead estimate the model up to the pre-pandemic period (before Q1 2020), produce a forecast for Q1 2020 and afterwards, and finally adjust the forecasted 2022-2027 growth path from that model by subtracting the difference between the forecasted 2021 Q4 employment figure and the actual 2021 Q4 figure. This means we still take the growth pattern (or "slope") estimated from the pre-pandemic data to be correct (as it captures a long-run trend that employment will return to as pandemic impacts dissipate), but we account for the near-future impact of the pandemic by shifting the level of employment downwards.

Data

We collected employment data from the Quarterly Census of Employment and Wages (QCEW), a nationwide survey administered by the Bureau of Labor Statistics. The QCEW is updated each quarter and its public-use files report aggregated statistics such as total employment, total wages paid out and number of establishments at the geography-by-industry level, where geography can be national, state, or county. Industries are identified by the North American Industrial Classification System (NAICS) code, which is hierarchical in nature and ranges from two-digit codes (broad industrial sectors) to highly detailed six-digit codes.

We used data going back to Q1 2010, providing 10 years (40 quarters) of observations prior to COVID-19. While there is no strict rule on how much historical data to use in a time series analysis, the general principle is to have enough data to capture secular trends (as opposed to temporary shocks or effects that will not last) but do not give as much weight to data from so long ago that the information may no longer be as relevant.

Challenge: Suppressed Data in QCEW. Importantly, publicly available QCEW data do not necessarily report on every business in the Census. To reduce re-identification risk and protect privacy, BLS suppresses data on certain "cells" of counties and industries (for example,

[10] R is a programming language for statistical computing with homepage: https://www.r-project.org/.

employment counts for a niche industry, a sparsely populated county, or a combination of both; another cause is an industry that is mostly made up of a small number of employers which could be re-identified). Independent analysis has found that at least 12% of U.S. manufacturing employment is suppressed in the QCEW's county-level files for this reason (the exact share depends on the granularity of the industry classification sought).[11] This posed a challenge, as Pennsylvania's 12 advanced industry clusters are defined as collections of five- or six-digit NAICS codes, which are often too detailed for the QCEW to make available.

First-Stage Solution to Suppressed Industry Data. To combat this issue, we leveraged the nested nature of NAICS codes. Even when a certain level of data is suppressed, the QCEW includes that data in higher-level aggregations (as long as that higher-level aggregation is itself not suppressed).[12] For example, NAICS code 325191 or "Gum and Wood Chemical Manufacturing" is one of the industries in Pennsylvania's Advanced Manufacturing cluster. This code is not observed in public QCEW files for Pennsylvania, but its parent code 32519, "Basic Organic Chemical Manufacturing", is observed. Furthermore, both codes 325191 and 32519 are observed at the national level. In this case, we calculate the share of employment in 325191 divided by employment in 32519 at the national level and multiply Pennsylvania's statewide employment in 32519 by this national share. We thus obtain an imputed employment figure for code 325191 in Pennsylvania, operating under the assumption that Gum and Wood Chemical Manufacturing accounts for an approximately similar share of Basic Organic Chemical Manufacturing in Pennsylvania as it does in the rest of the nation. To do this imputation, we use national QCEW tables from Q4 2019, the most recent period used in our forecast.

Some NAICS Could Not Be Imputed. Out of the 940 NAICS codes that constitute Pennsylvania's industry clusters, 821 can be exactly identified in state-level QCEW files and no further imputation is necessary for these. Of the rest, 72 can be imputed using the above methodology. This leaves 47 codes which we cannot impute, either because the parent code is also suppressed in the state data, or because the code itself is suppressed even at the national level. A list of all NAICS codes that could not be imputed is provided in Appendix 1.

Resolving Non-Imputable NAICS. The 47 NAICS codes that could not be imputed were dropped from the forecast. This decision was made for two reasons. First, a further imputation attempt would involve moving up two levels on the NAICS hierarchy (for the "grandparent" code, e.g. from 325191 to 3251) and then using employment in other observed codes to create upper and lower bounds for the missing code, which could become quite inaccurate. Second, there is reason to believe that the codes we cannot impute will make up only a small share of employment. If the parent code is also suppressed in state data, it means that not only was the code itself small enough to be suppressed, but even the code that is a higher-level aggregate was that small. If the code is missing in national data, this again means that even when aggregated to the national level, the industry was small enough as to warrant suppression. For these reasons, dropping these individual NAICS codes should result in minimal disruption to the forecast.

[11] Filling in the holes: Generating point estimates for QCEW suppressed data (Jan-Feb 2020) (indiana.edu)
[12] Questions and Answers (Q&A): U.S. Bureau of Labor Statistics (bls.gov)

Given these data considerations, we ultimately forecast state-level employment in each of the 12 industry clusters (adding up across all the NAICS codes in each cluster). To parcel these out to the county level, we use the Q4 2019 Pennsylvania QCEW file to calculate the share of each cluster's employment that is accounted for by each county.[13] Then the state-level employment in each forecasted quarter is split up to each county according to this share. The implicit assumption is that the geographic distribution of the cluster-level employment will not change significantly over the next five years. These share calculations are provided in a separate Excel file: ***county_cluster_shares.xlsx***.

Results

The results of the economic forecast are provided across Appendix 2 and three Excel files. Appendix 2 displays the estimated ARIMA specification and state-level employment projection graphs for each of the 12 Pennsylvania industry clusters. The Excel files provide forecasted counts for statewide aggregates, county-aggregates, and county-by-industry levels in the following files:

- ***Economic Forecast - COVID Shift.xlsx***
- ***Economic Forecast - by County.xlsx***
- ***Economic Forecast - by County and Industry.xlsx***

As a summary of the results, Table 1 gives the compound annual growth rate (CAGR) of employment in the 12 industry clusters for each county over the 2022-2027 forecast horizon.

Table 1: County-level CAGR for combined employment in the 12 industry clusters

County	FIPS	CAGR (%)
Statewide	Statewide	1.19
Adams	42001	0.79
Allegheny	42003	1.2
Armstrong	42005	1.13
Beaver	42007	1.32
Bedford	42009	0.86
Berks	42011	1.11
Blair	42013	1.23
Bradford	42015	1.32
Bucks	42017	1.08
Butler	42019	1.24
Cambria	42021	1.03
Cameron	42023	0.78
Carbon	42025	1.03
Centre	42027	1.05
Chester	42029	1.02
Clarion	42031	1.01
Clearfield	42033	1.03

[13] Note that when calculating these county shares, we cannot include any of the imputed codes, since they are missing from the Pennsylvania data.

County	FIPS	CAGR (%)
Clinton	42035	-0.84
Columbia	42037	1.19
Crawford	42039	0.86
Cumberland	42041	1.6
Dauphin	42043	1.42
Delaware	42045	1.2
Elk	42047	0.93
Erie	42049	1.1
Fayette	42051	0.91
Forest	42053	0.77
Franklin	42055	1.47
Fulton	42057	0.84
Greene	42059	0.42
Huntingdon	42061	0.91
Indiana	42063	0.81
Jefferson	42065	0.8
Juniata	42067	0.19
Lackawanna	42069	1.11
Lancaster	42071	1.02
Lawrence	42073	1.14
Lebanon	42075	1.32
Lehigh	42077	1.43
Luzerne	42079	1.56
Lycoming	42081	1.28
McKean	42083	0.84
Mercer	42085	1.16
Mifflin	42087	0.96
Monroe	42089	1.14
Montgomery	42091	1.25
Montour	42093	0.97
Northampton	42095	1.5
Northumberland	42097	1.28
Perry	42099	0.84
Philadelphia	42101	1.24
Pike	42103	0.89
Potter	42105	0.47
Schuylkill	42107	1.84
Snyder	42109	0.59
Somerset	42111	1.14
Sullivan	42113	0.4
Susquehanna	42115	0.76

County	FIPS	CAGR (%)
Tioga	42117	1.06
Union	42119	1.14
Venango	42121	0.84
Warren	42123	0.86
Washington	42125	0.96
Wayne	42127	0.94
Westmoreland	42129	1.05
Wyoming	42131	0.92
York	42133	1.16

Evaluation Limitations

This section summarizes the limitations on the findings from this evaluation.

Time period for Standards Development. The standards development analyses used a data file covering business services delivered over a three-year period from November 2020 to November 2022. Another factor that informed the decision to use a three-year analysis period was that several WDAs reported that they may not have complete records for periods prior to this during early planning for the evaluation design. It should be noted that three years is a period of sufficient length to estimate all USDOL business services performance metrics included, but a longer period would be required to assess if there have been changes in the repeat business customers metric over time. Furthermore, service delivery during the first two years of this period was impacted heavily by the COVID pandemic and may not be suitable for drawing direct comparisons with service delivery metrics immediately prior or after the pandemic. It may be worth returning to this analysis by region later to evaluate performance trends from 2022 onward.

Missing information in the CWDS and UC data files. A significant number of businesses did not have contact information for any of their locations in the UC data. This limited the evaluation's ability to construct a sample for the business survey that was both representative and of sufficient size for subgroup analyses by geographic region, industry, or number of employees.

Appendices

Supporting data for the evaluation are provided in the Appendices' tables and charts.

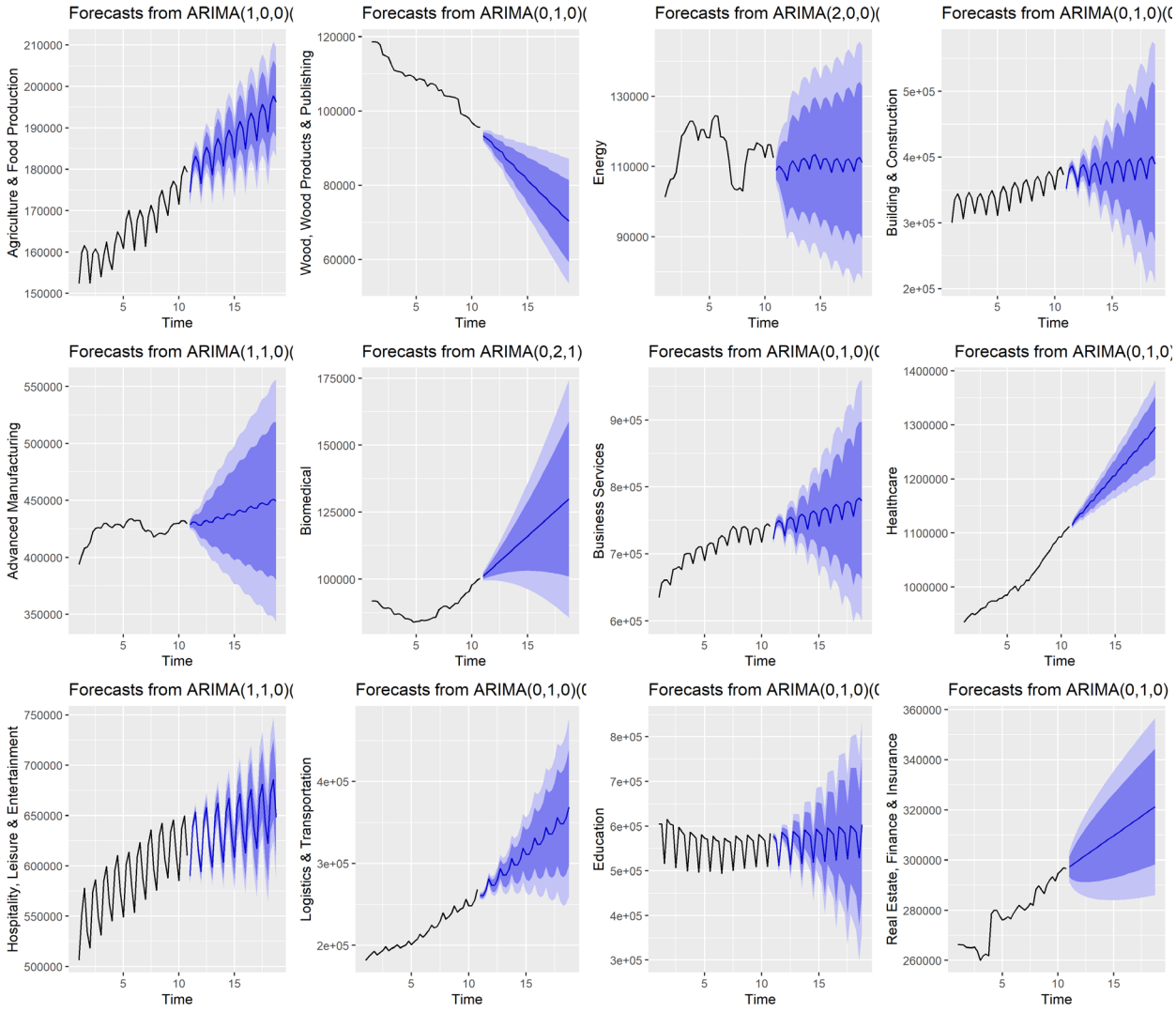
Appendix 1: NAICS that could not be imputed

Table 2: Suppressed NAICS that could not be imputed

Relevant Industry Cluster	NAICS	Reason the Code is Suppressed
Advanced Manufacturing	33322	Code is suppressed in national data
Advanced Manufacturing	333295	Code is suppressed in national data
Advanced Manufacturing	336111	Code is suppressed in national data
Advanced Manufacturing	336112	Code is suppressed in national data
Advanced Manufacturing	44311	Code is suppressed in national data
Advanced Manufacturing	44312	Code is suppressed in national data
Advanced Manufacturing	44313	Code is suppressed in national data
Agriculture & Food Production	11112	Code is suppressed in national data
Agriculture & Food Production	11113	Code is suppressed in national data
Agriculture & Food Production	11116	Code is suppressed in national data
Agriculture & Food Production	11131	Code is suppressed in national data
Agriculture & Food Production	11132	Code is suppressed in national data
Agriculture & Food Production	11191	Code is suppressed in national data
Agriculture & Food Production	11193	Code is suppressed in national data
Agriculture & Food Production	114111	Parent code is suppressed in PA data
Agriculture & Food Production	114112	Parent code is suppressed in PA data
Agriculture & Food Production	114119	Parent code is suppressed in PA data
Agriculture & Food Production	31132	Code is suppressed in national data
Agriculture & Food Production	31133	Code is suppressed in national data
Agriculture & Food Production	31221	Code is suppressed in national data
Agriculture & Food Production	312221	Code is suppressed in national data
Agriculture & Food Production	312229	Code is suppressed in national data
Agriculture & Food Production	32532	Code is suppressed in national data
Agriculture & Food Production	333294	Code is suppressed in national data
Business Services	51221	Code is suppressed in national data
Business Services	51222	Code is suppressed in national data
Business Services	51611	Parent code is suppressed in PA data
Business Services	51711	Parent code is suppressed in PA data
Business Services	51721	Parent code is suppressed in PA data
Business Services	51751	Parent code is suppressed in PA data
Business Services	518111	Parent code is suppressed in PA data
Business Services	518112	Parent code is suppressed in PA data
Energy	211111	Code is suppressed in national data
Energy	211112	Code is suppressed in national data
Energy	48611	Parent code is suppressed in PA data

Table 2: Suppressed NAICS that could not be imputed		
Hospitality, Leisure & Entertainment	72211	Parent code is suppressed in PA data
Hospitality, Leisure & Entertainment	722211	Parent code is suppressed in PA data
Hospitality, Leisure & Entertainment	722212	Parent code is suppressed in PA data
Hospitality, Leisure & Entertainment	722213	Parent code is suppressed in PA data
Logistics & Transportation	482111	Parent code is suppressed in PA data
Logistics & Transportation	482112	Parent code is suppressed in PA data
Logistics & Transportation	48699	Code is suppressed in national data
Real Estate, Finance & Insurance	52591	Code is suppressed in national data
Real Estate, Finance & Insurance	52593	Code is suppressed in national data
Wood, Wood Products & Publishing	33321	Code is suppressed in national data
Wood, Wood Products & Publishing	333291	Code is suppressed in national data
Wood, Wood Products & Publishing	333293	Code is suppressed in national data

Appendix 2: ARIMA cluster forecast graphs



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