ANALYZING TALENT FLOW:
Identifying Opportunities for Improvement

RESUME

STUDENT

EMPLOYER

PROVIDER

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Foreword

For prospective college students, selecting the right program at the right school that will deliver the results they seek—including securing a job in their desired field—requires greater transparency and more information from providers and employers alike. At a time when the national student debt has reached more than $1 trillion, making smart investment decisions in a career pathway that is backed by results can have a significant impact on what a student will end up paying for his or her education.

At the same time, to remain competitive in an increasingly globalized and complex economy, employers from every region and sector are using data in new and innovative ways to target their own investments and hiring practices, particularly for their most critical positions. Doing so provides employers an opportunity to be more effective partners to education and workforce providers and, in turn, to be more transparent with both providers and students about what they are looking for in job candidates and where they are getting job candidates that meet their requirements. Employers could also benefit from access to and use of related public data that provide valuable information on where potential job candidates go after completing their education and training programs. Improving the integration and use of employer and public data could play a critical role in understanding and improving career pathways for all stakeholders.

To address this need, the U.S. Chamber of Commerce Foundation (USCCF) is exploring an employer-driven approach to improve talent flows for critical jobs in key sectors (e.g., manufacturing, health care) at the regional level. Talent flow analysis (TFA) is a process for describing and analyzing the flow of workers into and out of a targeted set of jobs that are most critical for the competitiveness of employers and the region in which they do business.

This guide aims to explain the TFA approach and describe the "how to" steps for public-private economic and workforce development initiatives to implement TFA. The four steps are:

1. A group of employers selects the targeted jobs that are critical to competitiveness.

2. Each employer prepares internal talent inflow and outflow data for these targeted jobs, to be shared at an aggregate level with the group.

3. Using the aggregated data from each employer, regional employer summary tables and figures are created for the employers to use.
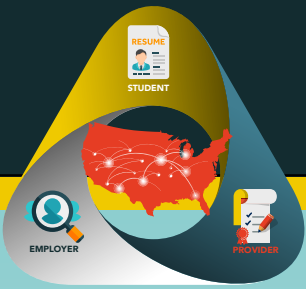
4. The group of employers analyzes the data to identify opportunities for improving talent flows, including how to make better use of underutilized sources of talent.

The time is right to explore how employers can work together to analyze and improve their talent flows. It is USCCF's hope that such an approach will be mutually agreed upon and executed by employers, and will result in stronger relationships with education and training providers and improved outcomes for students enrolling in those programs. With better information about programs prior to enrolling, students will be able to make greater use of their educational dollars. Further exploring and executing TFA serves as a win for all parties involved.

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Overview

The purpose of this guide is to explore an employer-driven approach to talent flow analysis (TFA) that can be used by regional public-private economic and workforce development initiatives to improve talent flows for critical jobs in key sectors (e.g., manufacturing, health care). TFA is a process for describing and analyzing the flow of workers into and out of a targeted set of jobs that are most critical for the competitiveness of employers and the region in which they do business.

The first section of this guide explores the need for an employer-driven approach to TFA. The second section defines the employer-driven approach, its principles, and its limitations. The third section describes the four "how to" steps, including how employer-led regional partnerships begin this process and then advance to adoption of more complex features as needs and opportunities arise. The final section suggests next steps in exploring and pilot-testing this approach in states and regions.

Introduction

Across America, employers are increasingly competing on how well they recruit, hire, and manage talent for their most critical positions. These competitive pressures are driving innovations in how employers use internal and external data sources and data analytics to understand and improve the process. These pressures also are driving breakthroughs in how employers use data to work with staffing services and education and training providers that have the capacity and commitment to provide this talent now and into the future.

At the same time, states and regions are competing for business investment by helping employers address their talent needs. As a result, states and regions are seeking stronger connections between economic development and education and workforce training. They are launching public and private initiatives to engage employers at the regional level in order to improve talent flows that better meet employer needs as well as enhance career opportunities for students and workers.

Most states and regions are managing these initiatives through new public-private partnerships, particularly sector partnerships that focus on the needs of key industry sectors such as manufacturing, health care, information technology, and transportation and logistics. Federal agencies including the Departments of Education, Labor, and Commerce, as well as philanthropic foundations, are providing funding and technical assistance to support these state and regional collaborations.
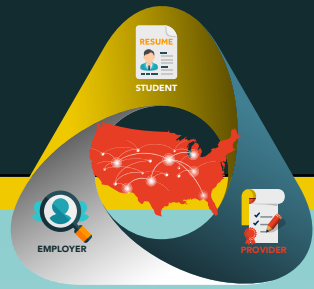
These initiatives complement the work states are conducting on career pathways and explore new ways to use public and private data sources and data analytics to improve talent management. In particular, they are exploring how to use new statewide longitudinal data systems (SLDSs) to track the flow of recent graduates from publicly funded education and workforce programs.

One major challenge facing these state and regional initiatives is how to better engage employers in a more collaborative public-private approach to talent management. A related challenge is how to integrate employer data sources with existing public data resources in analyzing and improving talent flows.

The U.S. Chamber of Commerce Foundation (USCCF) recently launched the Talent Pipeline Management (TPM) initiative to address these challenges based on lessons from supply-chain management. The TPM approach places a strong emphasis on employers working together in a *collaborative*—a voluntary assembly of business members that share the common goal of improving the talent flow process. This collaborative can be managed through a trusted intermediary, such as a business or economic development organization, chosen by the employer members. The members join together to compile and share information about their workforce needs and their education and workforce development partners. This shared information is then used to develop, implement, and evaluate joint talent management strategies.

This sharing and use of employer information through the collaborative as the trusted intermediary typically begins with "demand planning" in which employers together identify the most critical business functions and related jobs that will be the focus for joint talent management initiatives. These are the critical jobs that have the most impact on employer competitiveness and, as a result, the competitiveness of the regions where they do business. As part of this demand planning process, employers then develop and compile short-term forecasts of job openings, as well as competency and credentialing requirements for these jobs, and share this information with their education and workforce partners. The collaborative then turns to the "back-mapping" of each member's talent flows for these targeted jobs and uses that information to identify opportunities for improving these flows to meet forecasted needs. In general, back-mapping is the baseline analysis of talent inflows for these jobs, in ways that describe where employers get qualified workers and what happens to workers after entering these jobs.[1]

TFA promotes new thinking about how to use data analytic tools drawn from a variety of professional fields, including supply-chain and risk management, as well as widely accepted data-driven approaches to continuous improvement. It provides a promising new perspective on how to integrate leading employer and public-sector practices in conducting TFA. However, this approach raises questions on

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1. TFA as defined in this guide includes employer back-mapping and uses this back-mapping along with public data sources to identify improvement opportunities.

whether and how employers will actually work together with partners at the regional level to share and use public and private data that benefit employers, students, and workers, as well as providers. For example:

- How can employers share proprietary information on talent sourcing in ways that create value for employers but protect confidentiality?

- How can this shared information be used to improve talent management in ways that could not be done by employers working alone?

- How can employers incorporate comparable public data to identify opportunities to improve talent flows?

We now turn to a proposed approach to TFA that addresses these questions.

Talent Flow Analysis: Major Steps, Principles, and Limitations

This guide is written for the purpose of supporting employer-led initiatives to improve talent flows in ways that increase both employer and regional competitiveness and provide benefits to students, workers, and the publicly funded and regulated providers that serve them. This approach starts with a voluntary group of employers working together to share and use data for improving talent flows at the regional level.[2]
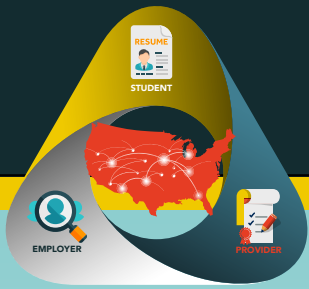
Talent Flow Analysis Process. TFA is based on a four-step process:

1. The employer collaborative **selects the targeted jobs that are critical to competitiveness** for the participating employers and develops short-term forecasts of job openings for each targeted job.[3] The employer collaborative then uses additional criteria for identifying those critical function jobs that will be the focus of TFA.

2. Each employer in the collaborative **prepares internal individual-level data describing talent inflow and outflow** for these targeted jobs for a baseline time period of one to five years. Each employer then **aggregates these data to protect confidentiality based on shared database templates and data-sharing protocols.**

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2. Regions refer to regional labor market areas where most people work and live, and where most employers search for talent to fill the vast majority of critical positions. However, most employers search beyond regional boundaries for upper-tier management and professional positions. Whereas this guide focuses on regions, TFA can be applied at all geographic levels ranging from local and regional labor markets to national and global markets.

3. The first step in this guide is part of a larger demand planning process that also involves the development of short-term forecasts for the targeted jobs. The forecasting component of demand planning is described in USCCF's forthcoming paper on the subject.

3. The group of employers, or an intermediary, receives the aggregated data from each employer and **prepares regional employer summary tables and figures for the baseline time period.** The collaborative also may compare these employer summary tables to regional tables developed from available public data systems.

4. The group **analyzes this employer and public regional data to identify opportunities for improving talent flows** that will be responsive to forecasted openings and create value for employers and other talent management partners and stakeholders.[4]

These four steps rest on the following principles and limitations:

• **Action.** The guide's value-in-use depends on agreement that the goal of employer-driven TFA is to identify and act on practical ways to improve talent flows to, among, and within employers. However, TFA is also intended to serve the interests of talent providers and individuals; thus the shared-value goal of TFA. This focus on action is assumed in the four-step process, which results in identifying the best opportunities for improvement.

• **Collaboration.** Employers now collaborate with other employers in many aspects of talent management, such as communicating career opportunities within their industry. Although many large employers already conduct TFA to improve talent sourcing from their education and workforce partners, they have not yet done this in cooperation with other employers.[5] Although this guide builds on the organizing principles of USCCF's TPM approach and the role of "employer collaboratives," this guide can be used by a variety of employer-led partnerships that are involved in state and regional sector initiatives. In almost all cases, these collaboratives or other types of employer-led partnerships will need to utilize a "trusted intermediary" such as a business or industry

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4. The four-step process is designed to be consistent with the widely recognized and used DMAIC improvement process: (1) define, (2) measure, (3) analyze, (4) improve, and (5) control. Step 1 helps "define" the focus and boundaries of the effort by choosing the critical function jobs that will be addressed in TFA. Steps 2 and 3 "measure" the current state or baseline performance in talent flows for these critical function jobs. Step 4 "analyzes" baseline data to identify opportunities for improvement. The four-step process then sets the stage for implementing and evaluating ways to "improve" the talent flow process and then fully implement and manage or "control" what works. For a summary of the DMAIC process and its applications, see Michael L. George (2002), *Lean Six Sigma: Combining Six Sigma Quality with Lean Speed*, New York, NY: McGraw Hill.

5. See Boeing and Alcoa examples in *Managing the Talent Pipeline: A New Approach to Closing the Skills Gap*, white paper from the U.S. Chamber of Commerce Foundation, November 2014. www.thetalentsupplychain.org.

association, or a hired contractor such as a university to support them in conducting TFA. This is especially important as employer collaboratives move from basic to more advanced practices and begin to integrate public data sources. The remaining sections of this guide refer to the "employer collaborative" assuming that the work of the partnership can be accomplished through various organizational arrangements that involve different types of trusted intermediaries.

- **Consensus.** To enable the creation of a set of regional TFA tables and figures, the employers in the collaborative need to come to agreement on the data elements that each will collect, summarize, and provide for integration with all other employers through the trusted intermediary. This guide provides some suggestions on the types of data elements that employers should consider and on how to aggregate these data in ways that protect confidentiality as much as possible. However, these data elements should be finalized through a consensus process based on the capacity and willingness of employers to provide this information to a trusted intermediary.

- **Trust.** Collaborative partners need to have a significant level of trust in one another with regard to the sharing of sensitive information. Without a certain amount of employer-specific information sharing, useful collaboration is not possible. Most helpful is having a clear set of protocols and templates for information sharing—what is to be shared and not shared, and rules about disclosure and nondisclosure to those outside the collaborative. This trust is essential in making sure that benefits outweigh any potential risks. This four-step TFA process is designed to build trust over time; that is why the guide provides some suggestions on where to start so that employers can gain some initial benefits from some "quick wins" by sharing easily compiled, basic information while managing the risks of data sharing. Quick wins aim to identify improvement opportunities that can have the largest impacts within the shortest amount of time. For example, to meet short-term needs, employers could use the TFA analysis to develop strategies to increase the number of qualified candidates applying for critical jobs from their most important education and training providers. As trust levels build over time, employer collaboratives can then move to more advanced practices that require more extensive data sharing with higher potential benefits.

- **Adaptability.** A collaborative should agree in advance about the steps to be carried out based on suggestions from this guide. This guide is just that—a set of suggestions. Each employer collaborative will need to adapt this guide to its purposes and unique circumstances and to the level of commitment of employers in sharing data and working together on shared talent management problems. It is recognized that this process
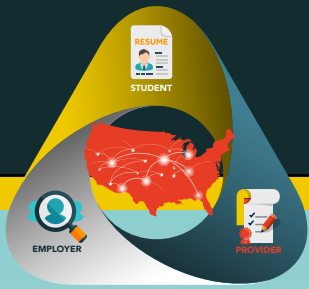
is likely to be new to some regional employer collaboratives, and that implementation of key principles, particularly around collaboration and trust, may require time and engagement to reach a desired comfort level. Each participating organization should, of course, proceed at the pace, and with the safeguards, that work best for them.

Step 1: Define Targeted Critical Function Jobs

The outcome sought from completion of Step 1 is a defined set of critical function jobs that are most appropriate for conducing TFA. The development of this list of targeted jobs is part of a larger demand planning process beyond the scope of this guide that also includes the calculation of job opening forecasts. However, this guide does address the suggested criteria, including the demand planning risks identified during the forecasting process, for defining the targeted critical function jobs.

Defining targeted critical function jobs necessarily begins within the employer community. Incentives for employers to participate in voluntary collaboration vary based on market condition beliefs. As specified in the organizing principles, the principal motivation for collaboration assumed here is a shared belief that employer success is, or might be, threatened by gaps in access to a sufficient pool of qualified individuals applying for their most critical jobs, and they can best address these gaps by working with other employers.

In Step 1, employers should engage those internal teams that have the largest influence on determining which jobs are most critical for the business, and that have major responsibility for recruitment, hiring, on-boarding, and development of talent in those jobs.[6]

How the stated Step 1 outcome might be pursued and achieved—the process— is the subject of this section. Those pursuing Step 1 may begin the process with varying levels of experience in defining critical function jobs; perhaps no experience at all. What matters in Step 1 is where the employers finish, not where they start.

Collaboration among small, medium, and large employers typically starts by identifying the most critical jobs for business competitiveness and then identifying the subset of those jobs that is best targeted for talent pipeline management solutions. Uncertainty and risk come into play in identifying targeted critical function jobs and quantifying related talent needs that will follow. The future is uncertain; we cannot say with conviction what will happen. However, we can assign risk values to many future scenarios of importance.

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6.   These teams within a business may change over time because of mergers and acquisitions or reorganization of internal talent management responsibilities.

- **Where to Start.** Employers should begin the Step 1 process by developing a short list of targeted jobs that meet the test of business criticality and similarities of critical function jobs.

  ○ **Business Criticality.** Is the job critical to the competitiveness of the company? Would problems in finding and retaining the right talent for these jobs pose major competitive risks to the company? A targeted job should be included only if there is agreement that job vacancies (unfilled positions) or not having the right talent in jobs carrying out this function would pose an unacceptable risk to future business success. This determination of critical jobs should not be made on how many people are employed in these jobs. It is common in some companies to have only a few people employed in the most critical jobs. Also, it is common to consistently have difficulty filling noncritical jobs, but these shortfalls are not expected to pose an unacceptable risk to future business success.

  ○ **Similarities of Critical Function Jobs.** Are there similar jobs among other employers in the collaborative with at least some shared competency and credentialing requirements? Can these similarities provide the basis for collaboration? Can employers reliably convert employer-specific job titles and hiring requirements into aggregated job clusters, both internally and among collaborative member businesses? Can the aggregated information then be successfully aligned with related public job classification systems and education and training programs to enable clear communication of need to external talent supply partners?

- **Moving to Advanced Practice.** As employers gain experience in working together as part of a collaborative, they should begin to consider criteria in addition to business criticality and similarities of job functions. Below are suggested criteria for consideration.

  ○ **Demand Planning Risks.** Are there uncertainties in future demand that may lead to major upward or downward revisions in job forecasts? Similarly, are there uncertainties for competency and credentialing requirements that pose competitive threats if not addressed through talent pipeline management solutions in cooperation with other employers? This risk, along with the uncertainties in forecasting future workforce needs for the targeted job, is determined in the demand planning process.

  ○ **Talent Sourcing Risks.** Are there major uncertainties in the current capacity of education and workforce development partners to provide enough qualified candidates to fill forecasted job openings? Are providers able to respond quickly to changes
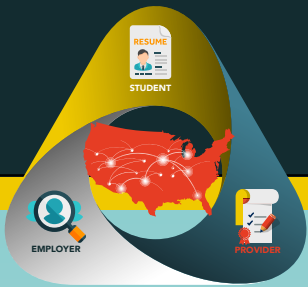
in these forecasts or changes in related competency and credentialing requirements over time?

○ **Talent Development Lead Time Risks.** Are there major constraints faced by education and workforce development partners in responding quickly to changes in forecasted job openings and changing competency and credentialing problems because of the time necessary to prepare qualified applicants? For example, some critical jobs requiring four-year degrees and industry certifications may have "lead times" of four to five years. Others, requiring a short-term education certificate or industry certification after completing high school, may require lead times of less than one year. Longer lead times pose higher risks in responding to short-term changes in forecasted openings as well as changing competency and credentialing requirements.

○ **Improvement Opportunity.** Are there major opportunities for improving talent management for this targeted job in cooperation with other employers and education and workforce development partners?

At this point in the Step 1 process, each participating employer will have developed its own list of relevant critical function jobs. Having received and combined the individual business contributions, the collaborative will decide how to assemble each respective organization's inputs to satisfy the nondisclosure criterion previously mentioned. There is no uniform template or guide to accomplish this aggregation. The practical way forward will depend on the mix of critical function jobs that has been received and the composition of external employers that will be asked to review and comment on the resulting preliminary list.

The vetting process should be designed to answer one important question: If the collaborative proceeds on to invest in Steps 2 and 3 (descriptions of current relevant talent flows), should the members and partners expect to discover previously unknown ways that the talent flow supply chain can be improved? Making the business case for further investment to activate the improvement plan is the necessary prerequisite to Step 4 (undertaking of a strategic plan for improvement).

The completion of Step 1 by the collaborative should end with the compilation of employer ratings for critical function jobs using the chosen criteria. As shown in Figure 1 (on page 11), this compilation could include a summary table that lists the critical jobs and the combined ratings for each of the criteria, along with a total rating. As described previously, collaboratives should start by focusing on the first two criteria—business criticality and similarities in critical function jobs—and then start to incorporate the additional criteria as they move to advanced practice.

Each collaborative retains flexibility to decide how these criteria will be weighted and combined to derive a total priority rating. The total priority rating column will

be used at the beginning of TFA Steps 2 and 3 to set priorities in analyzing talent flows and identifying improvement opportunities in Step 4. The vetting process's design and application should build communitywide confidence that the right critical function jobs have been identified for the next TFA steps.

**Figure 1: Compiling Employer Ratings of Critical Function Jobs**

Critical Job	Business Critical-ity	Similarities in Critical Function Jobs	Demand Planning Risk	Talent Sourcing Risk	Talent Development Lead Time Risk	Improvement Opportunity	Total Priority Ratings
Job 1							
Job 2							
Job N							

For example, a health care collaborative could identify therapeutic and diagnostic services as the critical functions and identify a list of jobs, such as registered nurses, that carry out these functions. The collaborative could then decide that business criticality and similarities in defining these jobs would carry the largest weights. Next, collaborative members could decide that only those rated as "high" on these two criteria would be considered. They then could decide that all remaining criteria would be weighted equally, and only those with high to moderate ratings on all remaining criteria would be considered. Finally, they could decide that the 10 highest-rated jobs would be given priority for TFA.

Another example that will be carried throughout the four TFA steps comes from the Information Technology (IT) sector. An IT employer collaborative could identify "network management" as a critical function and identify "network administrators" as one of five critical jobs that carry out that function. The collaborative could then determine that network administrator is the only one of the five jobs that has a common job definition and competency and credentialing requirements across collaborative members. Moreover, members of the collaborative may agree that this job definition is similar to what is found in the standard occupational descriptions used in government statistical information and state data systems. They could then decide that it is the only job that rates highly on both business criticality and similarities in critical function jobs and will be the only network management job given priority for TFA.

The Step 1 process that has been described here should be revisited as market and talent supply-chain events warrant. Event-triggered timing of Step 1 reactivation is encouraged. Fixed renewal cycles can be wasteful. Step 1 is not a stand-alone exercise conducted in a vacuum. It is the first of four integrated steps that open a door to successful TFA. Confidence that Step 1 has been successfully completed does not ensure success in the later stages of the four-step process, but it provides the necessary entrée to that probability.
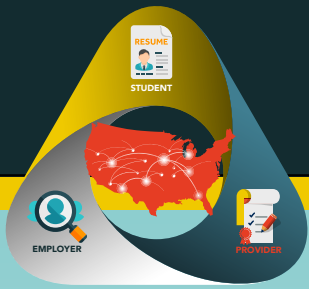
Step 2: Describe Employer-Specific Talent Flows

In this step, each employer in the collaborative collects, organizes, and summarizes data on its particular talent flows for the jobs targeted in Step 1. From there, each employer within the collaborative provides its respective aggregated data to the collaborative based on a shared database template and data-sharing protocol designed to protect proprietary and confidential data as much as possible. In Step 3, each employer's aggregated data are pooled and compared with related public data, allowing the creation of a set of regional TFA tables and figures ready for analysis (Step 4).

Collaborative members have a set of choices to make regarding the data elements to be collected and where to get those data. This set of choices can range anywhere from simple and focused to more complex and broad, depending on the capacities and interests of collaborative members.

As the aim of each collaborative is to build long-term, mutually beneficial relationships, each might consider starting with a relatively simple set of choices and expanding those choices as it gains knowledge and experience in collecting, organizing, and merging the data.

Below, this guide lays out the various options regarding data topics and sources. At the beginning of Step 2, collaborative members should find consensus on the set of choices to which each will adhere (as a minimum) so that each employer's summary data can easily be added up to create region-wide tables. Any member is free to gather and analyze additional data for internal purposes.

In building this consensus on data elements and database templates, we now provide some options to consider so that employer data can be aggregated and used with public data sources while protecting employer proprietary information as much as possible.

Data Sources. Employers in a collaborative can gather data on individuals from three sources:

- Applicant tracking system (ATSs) or larger talent management system (TMSs) for tracking information on job application, screening, and hiring;[7] employer systems could range from simple spreadsheets and paper files to more sophisticated software applications

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7. The USCCF white paper *Managing the Talent Pipeline: A New Approach to Closing the Skills Gap* has employer cases studies of leading practices in talent management that involve the analysis of talent flows. Examples of TMSs and how they can be used to collect and analyze data for end-to-end talent management for all sizes of companies can be found in Allan Schweyer (2004), *Talent Management Systems: Best Practices in Technology Solutions for Recruitment, Retention and Workforce Planning*, John Wiley & Sons Canada Ltd.

- Human resource management systems (HRMSs) that organize information by employee from hire through separation

- External sources of employment and education and training histories on individuals, such as LinkedIn and resume banks maintained by vendors and states

DATA SOURCES

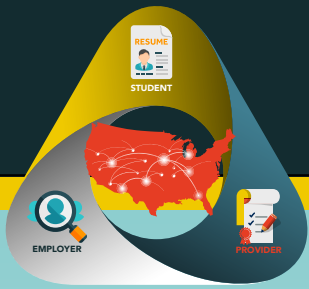| Applicant Tracking Systems (ATS)	Human Resource Management Systems (HRMS)	External Sources
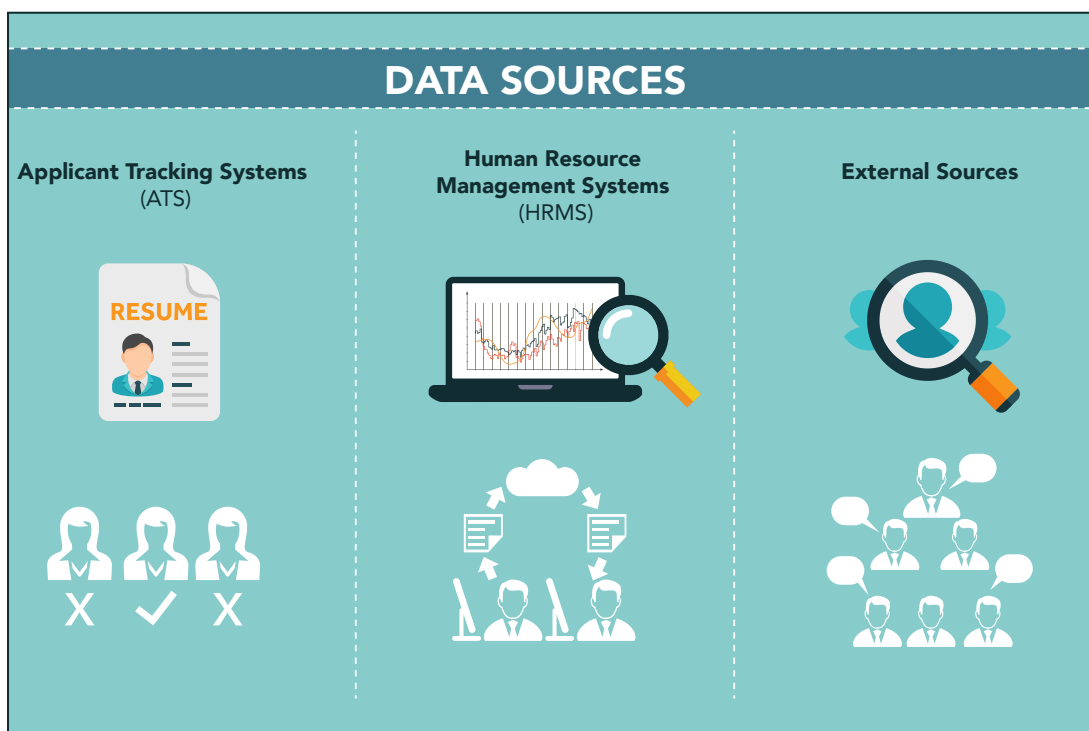
At a minimum, each member of a collaborative should make use of their ATS, which should have the information needed to back-map the flow of talent to the firm. The ATS usually contains information on applicant characteristics—such as education and training, credentials, and job history, as well as hiring source such as job board, employment intermediary, or college.

Data from the HRMS could be used to provide additional information on employees' tenure at the firm. The HRMS indicates each hire's level of qualification, internal job-specific mobility and performance, and perhaps reason for leaving.

External resources are useful in identifying the subsequent experience of employees who have left the firm and in filling data gaps in the ATS. The most important external resources are those that can provide additional information on employment, education and training, and credentialing histories normally found in professional resumes and profiles. LinkedIn is oriented toward high-

skilled managerial and professional workers.[8] Resume banks are more likely to contain information on workers in middle- and lower-skilled jobs.[9] The array of, and availability of access to, resume banks varies from region to region.

Talent Populations. There are three major choices in deciding on the population of talent that will be addressed in conducting TFA:

- **Qualified Hires.** The simplest choice is to focus on hires who met all required hiring qualifications and whose performance was rated as "satisfactory" or better.

- **All Hires.** A broader option is to cover all hires, including those who did not meet all required hiring qualifications and did not perform satisfactorily after hiring. The advantage of this approach is it allows employers to compare the characteristics of satisfactory and non-satisfactory hires.

- **Applicants.** The most expansive approach is to gather information on all of the firm's applicants who met minimum hiring qualifications. Doing so enables employers to better see the relative value of various individual talent sources (such as colleges, employment intermediaries, and internal career pathway jobs).

For each of these talent populations, the collaborative could also decide to collect information on targeted subpopulations, including women, minorities, veterans, and individuals with disabilities, that many times are addressed in workforce diversity initiatives. These targeted populations could then be addressed in each step of the TFA process along with the larger talent population.

Talent Flow Time Period. Whatever its approach, the collaborative also should determine a time period for analysis. It is suggested that this be between one and five years, depending on the targeted critical function jobs and the perceived nature of relevant demand planning and supply flow issues.

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8.   LinkedIn (www.linkedin.com) states: "With more than 347 million members worldwide, including executives from every Fortune 500 company, LinkedIn is the world's largest professional network on the Internet." TFA collaborative members can use LinkedIn to gather information regarding the education and experience of individual LinkedIn members.

9.   An employer in a TFA collaborative can seek to find individuals' resumes to fill out their understanding of prior and subsequent education and experience. A listing of 92 national resume banks is available at Resume Rabbit (https://www.resumerabbit.com/online_job_banks.jsp). State- and region-specific resume banks are also available.

Talent Sources. Talent for a firm's critical jobs comes from sources in three categories:

- **Incumbent workers**—from different jobs within the firm
  - ❍ Internal job boards
  - ❍ Internal promotions and transfers

- **Experienced outside workers**
  - ❍ Prior employers
  - ❍ Employment intermediaries—staffing firms, external job boards, referrals

- **Newly trained and credentialed workers** with limited work experience
  - ❍ Schools, colleges, and universities—by program and credential
 - ❍ Other education/training providers—by program and credential

Employers in a collaborative can choose to focus on one, two, or all three categories. The latter is preferable in that it allows employers to evaluate their experience by the full array of talent sources.

Talent Flow Tiers. Collaborative members also need to determine how deep into the talent pipeline they wish to delve. Talent pipelines can best be understood in terms of tiers. In supply-chain management, Tier 1 suppliers are those that provide products and services directly to the end-use customer in the supply chain. Tier 2 suppliers provide products and services to Tier 1 suppliers that then add additional value before providing the product or service to the end-use customer. There may also be Tier 3 and higher-tier providers that play similar roles in the supply chain. Suppliers can play both Tier 1 and Tier 2 roles with different products and services.
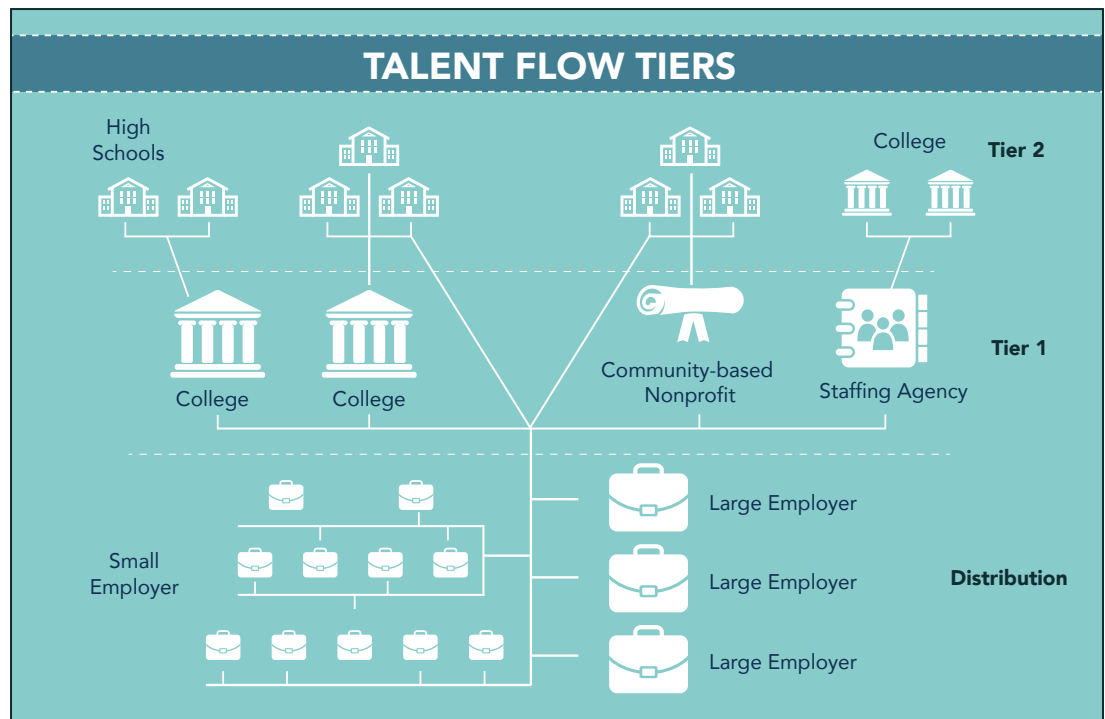
In talent pipelines, Tier 1 providers are those that provide qualified workers directly to employers. These Tier 1 providers could be job boards, staffing agencies, or education and training programs that provide direct placement to employers. Tier 2 providers provide talent to Tier 1 providers that add more value in the form of job placement services or further education and training. For example, a Tier 2 education and training provider such as a high school or community college may refer or transition students to other colleges, universities, and employment and staffing agencies for additional value-adding services before they reach employers through these Tier 1 partners.

As shown in Figure 2 (on page 18), the simplest approach is to identify only Tier 1 sources and any higher-tier provider that offered the required education, training, and credential for the targeted job. That said, a more expansive data collection effort would allow the collaborative to develop a more complete understanding of
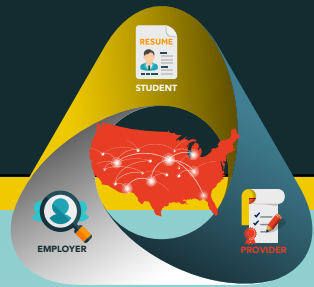
the regional provider network. This is particularly the case if efforts are undertaken to build more structured talent pipelines among those suppliers deemed to have the best capacity and commitment to meet future needs in the critical jobs identified in Step 1.

TALENT FLOW TIERS

High Schools	College	**Tier 2**
College College	Community-based Nonprofit Staffing Agency	**Tier 1**
Small Employer	Large Employer Large Employer Large Employer	**Distribution**

Deciding on What Employer-Specific Data to Collect and Share. Employers should also agree on what types of data they should collect and share about the talent populations in an aggregate form. Suggestions include:

- **Education/Training and Credentialing.** Whatever the number of talent pipeline tiers chosen, a collaborative could ask each employer to identify relevant education and training providers and credentials for each person.

- **Employment Intermediaries.** The collaborative could also ask each employer to identify the employment intermediaries, including job boards and staffing and employment agencies, used to identify and refer qualified candidates.

- **Nature of Prior Employment.** In addition to identifying the sources from which talent came, a collaborative could choose to gather more information on individuals' prior employment, such as previous job titles, especially those related to the critical jobs (as defined in Step 1), if any.

- **Nature of Experience with Employer.** The collaborative has the option of gathering information on aspects of each individual's tenure with that employer, including:
  - Whether the person was deemed "highly qualified" or "qualified" at the time of hiring
  - Length of service at the firm
  - Length of service in the critical job
  - Current status with the firm
  - If no longer in the critical job, the reason (e.g., promotion, voluntary separation, involuntary separation)

  Such information can help firms better understand the role of the employer itself in determining the quality of results from the talent pipeline.

- **Nature of Subsequent Experience.** The collaborative can ask each member to collect data on employees who are no longer in a critical job related to their subsequent experience with regard to employment, industry, occupation, additional training, unemployment, as well as geography and dates of subsequent activity.

  Such information would be helpful in better understanding the dynamics of careers in critical positions. In the realm of subsequent experience, the collaborative would need to determine the breadth and depth of information to be collected. One option to consider is identifying the next experience after leaving the critical job.

Compiling Employer-Specific Data for Internal Use. Employers should start by compiling individual-level data for internal use based on database templates provided by the collaborative. The collaborative should start with basic database templates and then introduce more complex templates over time to capture more comprehensive information on talent flows through multiple tiers of the supplier network.

- **Where to Start.** It is suggested that, at a minimum, each employer in the collaborative agree to prepare a basic back map of satisfactory external hires over the prior two years that identify: (1) the Tier 1 supplier and (2) the supplier, regardless of tier, that provided the hire with the necessary competencies and credentials to meet hiring requirements. Employers would use information from their ATS, TMS, and HRMS to build an internal database that might look like Figure 2 (on page 18).

  Per the previous IT example from Step 1, an Information Technology (IT) employer collaborative—after identifying network management as a critical function and network administrator as a critical job—could develop
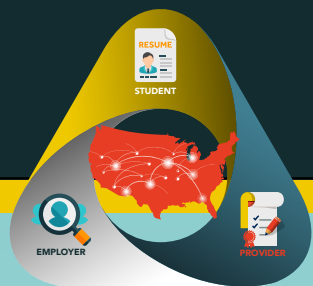
a database of all satisfactory hires over the last two years for that job. As shown in Figure 2, they could quickly notice that most of these outside hires came from a short-term certificate program at a local university that provided graduates with an industry certification (University R, Program A) and a local community-based provider that had a similar program resulting in the same industry certification (Community-Based Training Provider A, Program B). This included those who were recruited by their major recruiting partner (DEF Recruiters). They could continue to build this database for other critical jobs carrying out the network management function.

Figure 2: Where to Start: Example Data Compiled by an Employer of External Hires for Internal Use

Name	Tier 1 Source (Most direct)	Education/Training/Credentialing Source[10]
Critical Job X		
Name 1	DEF Recruiters	University of R, Program A
Name 2	Community-Based Training Provider A, Program B	Community-Based Training Provider A, Program B
Name 3	University of R, Program A	University of R, Program A

- **Moving to Advanced Practice.** As collaboratives develop more experience and trust among employers, they may want to capture more complete information on talent flows through all major tiers of the talent supply chain, including internal talent flows for incumbent workers. A more advanced practice database template might look like Figure 3 (on page 19).

  For example, this more complete information would allow an employer collaborative to realize that some satisfactory hires recruited by DEF recruiters got valuable experience at leading employers after leaving the university program. It also would allow them to realize that many of the hires from the community-based program were hired as network administrators based on an internal career pathway in which they entered as a computer support specialist (Job W) and then advanced to assistant network administrators (Job N) before moving into the network administrator jobs. They also noticed that some recent hires from the university program had completed training as computer support specialists and received an industry certification for that job before transitioning into the university program.

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10.   Education/Training/Credentialing Source is the entity that provided the education and training and the credential that met the competency and credentialing requirements for the critical job. As shown in Figure 2, University R, Program A provided Name 1 with the education, training, and the credential (e.g., engineering degree) even though the employer accesses Name 1 through the DEF recruiting agency.

Figure 3: Advanced Practice: Example Data Compiled by an Employer for All Hires for Internal Use

Name	Type of Talent Source	Tier 1 Source (Most direct)	Tier 2 Source (Supplier to Tier 1 if applicable)	Tier 3 Source (Supplier to Tier 2 source if applicable)[11]
Critical Job X				
Name 1	Experienced Outside	DEF Recruiters	Firm N	University of R, Program A
Name 2	Incumbent	Job N	Job W	Community-Based Training Provider A, Program B
Name 3	Newly Trained/ Credentialed	University of R, Program A	Community College Z, Program A	

This advanced practice back-mapping database template could be expanded to include more data at a more granular level over time. For example, the database template could be expanded to include:

- More detailed information on prior employment (including job titles and years of service) and more detailed information on prior education and training (including more information on specific programs).

- Nature of experience with current employer. Additional columns could include performance rating (highly satisfactory, satisfactory), evaluation at time of hire (highly qualified, qualified), length of service in organization, and length of service in critical position.

- Nature of subsequent experience (additional columns could include employment status, industry, occupation, additional training, and location).

Internal Analysis of Collected Data. Once each employer has completed its data collection, it has the opportunity to analyze its database for its own benefit. In particular, it can seek to answer the following questions:

- Overall, is the supply of talent that fills critical jobs considered highly satisfactory or less than highly satisfactory?

- If less than highly satisfactory, in what ways?

- What are the reasons?

- How might these reasons be addressed?

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11. A Tier 3 source, at minimum, should include the education or training provider that awarded a credential required to qualify for the critical job as shown in Figure 2 (so long as this source is not one of the providers listed in Tier 1 and Tier 2).
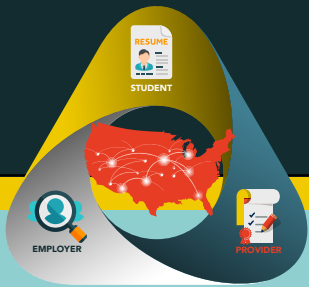
Developing Summary Tables for Collaborative Use. After compiling this individual-level data for internal use, each employer then creates an aggregate database, designed by or on behalf of the collaborative, that summarizes the collected information to protect individual confidentiality.

- **Where to Start.** It is suggested that at a minimum each employer in the collaborative agree to prepare a summary database that aggregates data from Figure 2 on Tier 1 suppliers and suppliers that provided the necessary education, training, and credentials for hiring of external applicants over the last two years. This might look like Figure 4.

  As an example, employers in our IT collaborative could realize the relative contribution of each of the suppliers in providing satisfactory external hires for the network administrator jobs and see that three universities represented the major providers that met their credentialing requirements for these jobs and therefore, were the major sources for satisfactory outside hires.

Figure 4: Where to Start: Example Aggregated Data Submitted by an Employer to a Collaborative

Critical Position X	Number of New Hires	Tier 1 Source (Most direct)*	Education/Training/Credentialing Source
Experienced Outside	6	DEF Recruiters (2)	University of T, Program A (2)
		In-Region Employers (4)	University of R, Program A (3) University of S, Program A (1)
Newly Trained/ Credentialed	4	University of R, Program A (2)	
		University of S, Program A (2)	

* Numbers in parentheses represent the number of people from the source provided to the next partner or directly to employer.

- **Moving to Advanced Practice**. As collaboratives develop more experience and trust and start to build internal databases as shown in Figure 3, they can begin to provide more extensive aggregated data across more tiers. This might look like Figure 5 (on page 21).

  Building on our IT example, employers in the collaborative could realize the relative contribution of each of the suppliers in providing satisfactory external hires for the network administrator jobs and see that the career pathway from computer support specialist to assistant network

administrator to network administrator was a frequent pathway for those hired from the community-based training program and that the community college was also a major Tier 2 source of hires from the university program.

Figure 5: Advanced Practice: Example Aggregated Data Submitted by an Employer to a Collaborative

Critical Position X	Number of New Hires	Tier 1 Source (Most direct)*	Tier 2 Source (Supplier to Tier 1 if applicable)	Tier 3 Source[12] (Supplier to Tier 2 if applicable)
Experienced Outside	6	DEF Recruiters (2)	Out-of-Region Employers (2)	University of S, Program A (1) University or R, Program A (1)
		In-Region Employers (4)	University of R, Program A (4)	
Incumbent	4	Job Category N (4)	Job Category W (4)	Community-Based Training Provider A, Program B (4)
Newly Trained/ Credentialed	4	University of R, Program A (2)	Community College Z, Program A (2)	
		University of S, Program A (2)		

*Numbers in parentheses represent the number of people from the source provided to the next partner or directly to the employer.
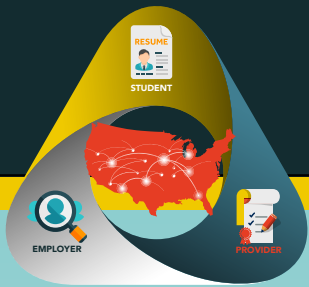
If each member of the collaborative agrees to collect additional data elements, the collaborative would add columns and rows to the database template, as appropriate. Each employer then submits the aggregate-level data file to the designated trusted intermediary.

Step 3: Describe Regional Talent Flows

In this step, each employer's aggregated data are pooled and compared with related public data, allowing the creation of a set of regional TFA tables and figures ready for analysis in Step 4. The employer collaborative regional tables are designed to identify improvement opportunities with existing talent suppliers from within or outside the region. In contrast, regional public data tables are designed to identify opportunities to more fully leverage existing suppliers from within the region, and to more effectively use other potential suppliers who currently do not provide qualified candidates to employers in the collaborative.

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12. A Tier 3 source, at minimum, should include the education or training provider that awarded a credential required to qualify for the critical job as shown in Figure 4 (so long as this source is not one of the providers listed in Tier 1 and Tier 2).

Employer Collaborative Regional Tables. The collaborative creates a set of summary regional tables by aggregating the data provided by the individual employers in Step 2. The collaborative shares the resulting regional tables with each member of the collaborative for Step 4 analysis. It keeps confidential the aggregated databases provided by each employer. In creating the summary regional tables, the collaborative needs to ensure that no data can be linked to an individual employer.

- **Where to Start.** Based on the data provided by employers as shown in Figure 4, a summary regional table with minimum data elements might look like Figure 6.

  To put into the context for our IT example, employers in the collaborative may notice that almost all of their satisfactory external hires came from the same sources including the same three university programs. Although many used DEF Recruiters, others hired experienced workers directly through their own job boards and most came from other employers in the region.

Figure 6: Where to Start: Example Collaborative Regional Table Complied from Employer Submissions

Critical Position X	Number of New Hires	Tier 1 Source (Most direct)*	Education and Training Source (Supplier providing necessary education and training and credential for hire)
Experienced Outside	50	DEF Recruiters (20)	University of T, Program A (20)
		In-Region Employers (30)	University of R, Program A (22) University of S, Program A (8)
Newly Trained/ Credentialed	20	University of R, Program A (15)	
		University of S, Program A (5)	

- **Moving to Advanced Practice.** Based on more extensive talent flow data provided by employers as shown in Figure 5, an advanced practice summary regional table might look like Figure 7 (on page 23).

  Again, building on the IT example, employers may realize that they all shared a similar internal career pathway from similar job categories for computer support specialists (Job Category W) and assistant network administrator (Job Category N), especially from graduates of the community-based training provider. They also received a large share of new hires who started their training at the community college.

## Figure 7: Advanced Practice: Example Collaborative Regional Table Complied from Employer Submissions

Critical Position X	Number of New Hires	Tier 1 Source (Most direct)*	Tier 2 Source (Supplier to Tier 1 if applicable)	Tier 3 Source (Supplier to Tier 2 if applicable)[13]
Experienced Outside	50	DEF Recruiters (20)	Out-of-Region Employers (18)	University of T, Program A (14)
		In-Region Employers (30)	University of R, Program A (28)	
Incumbent	40	Job Category N (40)	Job Category W (22)	Community-Based Training Provider A, Program B (18)
Newly Trained/ Credentialed	20	University of R, Program A (15)	Community College Z, Program A (10)	
		University of S, Program A (5)		

Regional Providers Table. To enhance the dataset prepared for Step 4, the collaborative can consider the option of asking the region's publicly funded and regulated education, training, and workforce development providers to provide comparable aggregated data to the collaborative on the employment outcomes of the students and job seekers they served during the same time period. These providers could include public workforce agencies that provide employment and job placement services, and public education and training organizations including high schools, proprietary schools, nonprofit community-based organizations, community colleges, and universities. If possible, this comparable information should address the employment outcomes of their students and job seekers for each critical job, particularly indicating the percentage hired by regional employers in critical jobs, those in the region but not in critical jobs, and those who left the region. However, employer collaboratives should recognize that states and regions vary widely in their capacity to provide this summary data.

To the extent necessary, the collaborative could assist each education and training provider in this process, including facilitating a connection with the SLDS, which maintains a record for each graduate, including employment outcome, if the information is available. At present, it is difficult for most SLDSs to obtain employment outcome information on former students who have moved out of state.[14]

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13. A Tier 3 source, at minimum, should include the education or training provider that awarded a credential required to qualify for the critical job as shown in Figure 6 (so long as this source is not one of the providers listed in Tier 1 and Tier 2).

14. An effort is currently being pursued to create a protocol with the Census Bureau to work with an SLDS to track the employment outcomes of such former graduates.
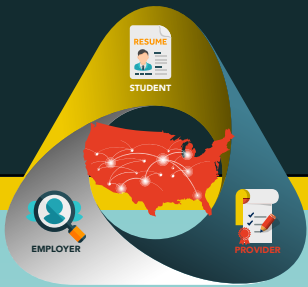
- **Where to Start.** The collaborative should start with a focus on public education and training providers that prepare newly trained students and are included in most state longitudinal education and workforce data systems. If a state and region have this capacity, such a table might look like Figure 8.

  For example, the IT employer collaborative could quickly realize that they are not fully utilizing the three university programs that provide the most satisfactory external hires, especially from University S. They also could realize that there is another university program that they do not utilize at all. They could then look at their projected job openings compared to recent hiring levels from the three universities and determine whether they should focus more attention in sourcing more hires from the three universities and exploring whether they should consider sourcing hires from University U.

Figure 8: Talent Flows from Regional Education and Training Providers for Each Critical Job

Education and Training Program	# Graduates with Required Credentials in Last 2 Years			
	Employed by Collaborative Employers in the Region	Employed in Region but Not by Collaborative Employers	Employed Outside of Region	Not Employed/ Unknown
University R, Program A	53	5	25	2
University S, Program A	5	10	45	5
University T, Program A	14	6	2	0
University U, Program A	1	9	30	5

- **Moving to Advanced Practice.** Based on a more extensive use of state education and workforce longitudinal data systems, the employer collaborative could ask for information on the education and training program histories of students entering the four university programs. They could discover that about 50% came from a regional community college and were the most likely to complete the four university programs and be employed by collaborative employers or other employers in the region. They may also realize the other students who were previously employed in the region before entering the program also had strong completion and retention rates. However, other students had high non-completion rates and were more likely to leave the region.

Step 4: Analyze Opportunities for Improving Talent Flows

Up to this point, the guide has covered three steps that an employer-led collaborative can follow to understand selected aspects of regional talent needs and provider response capabilities. This fourth step suggests ways to advance from improved understanding to targeted strategic actions.

The final TFA step encourages employers to work together with external partners to use their shared data to identify opportunities for closing the gap between forecasted job openings and the supply of qualified workers and to improve the overall performance of the end-to-end talent management process.

Shared Employer Measures. This analysis requires the employer collaborative to develop some common performance metrics for the demand-supply gap analysis to address the degree of balance in the amount and timing of talent flows relative to forecasted job openings for all critical jobs. In addition, this analysis requires measures of talent pipeline performance that address and balance three critical dimensions—quality, time, and cost.[15]

- **Quality** refers to whether students and workers have the necessary competencies and credentials to successfully perform the most important work for a critical function job.

- **Time** includes optimizing and streamlining time spent in value-adding activities and reducing non-value-adding activities and unnecessary wait times. This addresses the need to reduce talent development lead times whenever possible and reduce the overall "time to full productivity"— that is, the time from initial training to being able to meet performance expectations in the workplace in the targeted critical job.

- **Cost** is the balancing of total amount of dollars spent and shared by all stakeholders in producing, hiring, and retaining high-quality workers, including reduction in opportunity costs, such as foregone earnings.

Capturing Provider Performance and Scale of Importance. In addition, employers should use performance metrics that capture both provider performance and the scale of importance. Scale of importance refers to the overall size and contribution of the provider to meeting forecasted openings for critical jobs.

For example, improving the performance of a provider that provides less than 10% of qualified hires may not provide the scale of improvement needed by employers

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15.   For more information on talent pipeline performance measures, see *Managing the Talent Pipeline: A New Approach to Closing the Skills Gap*, white paper from the U.S. Chamber of Commerce Foundation, November 2014. www.thetalentsupplychain.org.
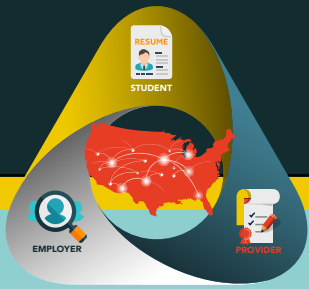
in the short-run unless that provider can quickly increase scale to meet projected needs. In contrast, improving the performance of a high-performer that provides more than 50% of qualified hires may offer a better opportunity for closing the gaps between demand and supply within a region.

Whenever possible, the development of these talent flow metrics should seek to align existing employer and public metrics, so the collaborative can make the best use of existing public data resources and provide consistent incentives to partners receiving public funding.

- **Where to Start.** Employer collaboratives should start by measuring and analyzing talent pipeline performance to identify opportunities for quick wins; that is, those improvement opportunities that can have the largest impacts within the shortest amount of time. One option would be to focus first at the points of hiring and short-term retention where employers and Tier 1 providers can work together to achieve improvements. This includes the on-boarding process where new hires are given the necessary orientation and training to reach required performance levels within an expected time period. The draft of the USCCF TPM toolkit provides some example measures that could be used for identifying improvement opportunities at the points of hire and short-term retention.[16] These measures include, but are not limited to:

  - **Point of Hire:**
    - Ratio of forecasted job openings to actual job openings posted with partners
    - Ratio of forecasted job openings to number of pre-screened and referred applicants from partners
    - Percentage of referred external applicants from partners who meet competency and credentialing requirements
    - Percentage of referred applicants from partners who were hired

  - **On-Boarding and Short-Term Retention**
    - On-boarding success rate—percentage of hires meeting employer performance expectations within expected time periods
    - On-boarding time—average number of days from hiring to meeting employer performance expectations
    - Employment retention rate—percentage of hires retained in employment after specified time period

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16. USCCF TPM Toolkit is being developed in cooperation with TPM pilot sites and national partners. This TPM Toolkit will be published in December 2015. These example measures are drawn from the first draft of the toolkit and may change based on pilot site feedback and further research into leading employer measures.
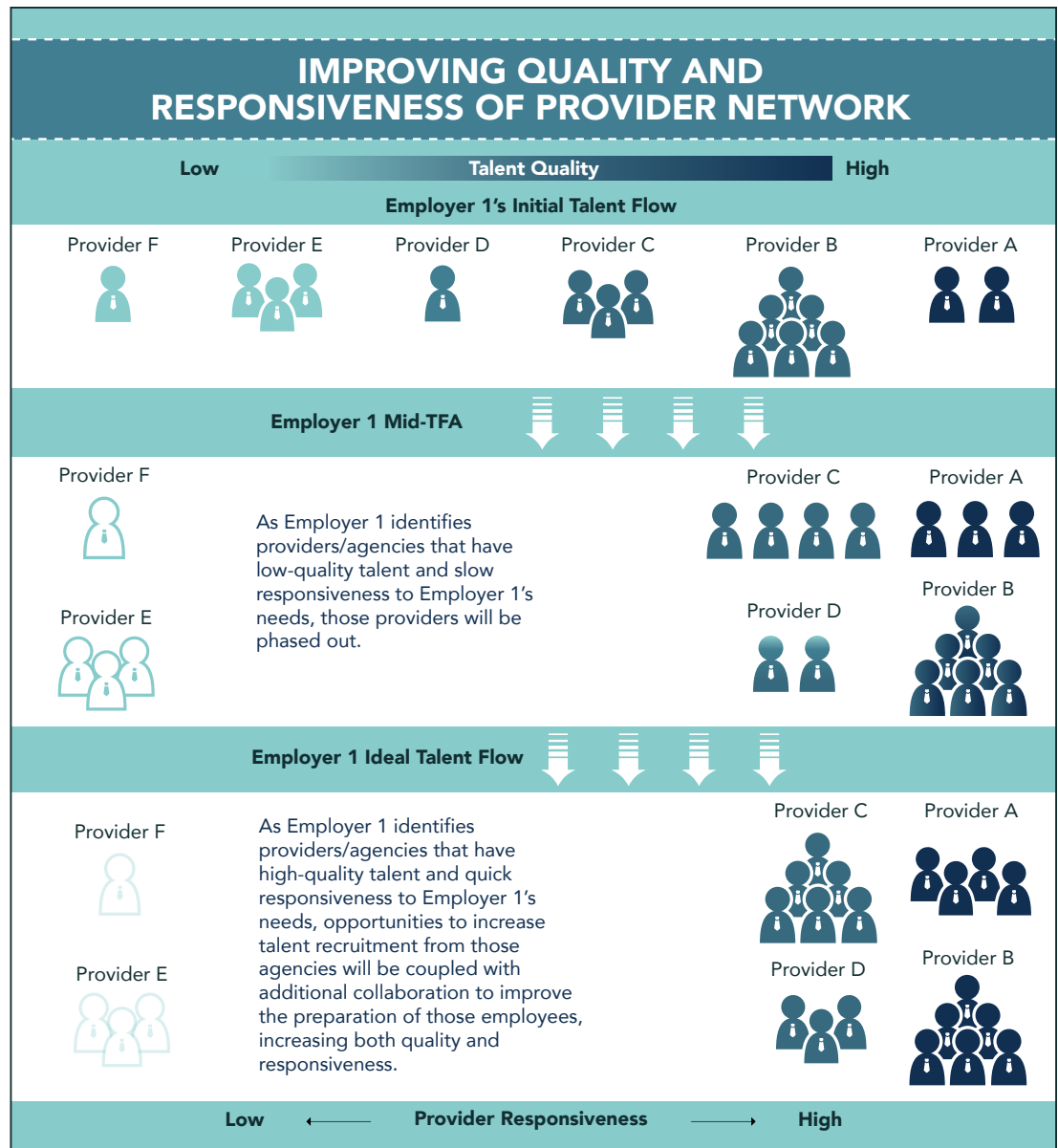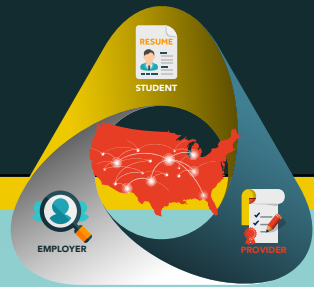
- **Moving to Advanced Practice.** Over time, some employer collaboratives may want to expand their data sharing, and develop and use performance metrics to analyze the entire end-to-end talent management pipeline, including all talent inflows and outflows. In addressing talent inflows, employer collaboratives may want to measure the efficiency of the entire pipeline for hiring newly trained workers. For example, they may want to measure the percentage of qualified students entering Tier 1 education and training programs from Tier 2 suppliers. In addressing the talent outflows, they may want to measure longer-term career advancement and retention rates.

Analyzing Performance Data. Employer collaboratives should start by looking at some basic measures of quality and cost and also where there is sufficient scale of importance to achieve short-term results. They should use simple graphs and figures whenever possible to visually display opportunities for improvement.

- **Where To Start.** Employer collaboratives may want to start by simply reporting the collaborative's performance by identifying education and training and workforce development partners over the last two years. This could be done with simple performance dashboards with indications of where there are performance problems that require immediate attention. Collaborative members may also want to utilize more advanced analytic tools that address the relationships between performance measures of quality, time, and cost as well as the scale of importance of providers.

As shown in the graphic on page 28, Provider B provides relatively high-quality job applicants with most job applicants meeting competency and credentialing requirements with complete and error-free application information. And, the provider offers a high level of responsiveness because it can provide a fast turnaround to job postings. This is in part due to recruiting from experienced workers and recent university graduates from a provider that has a competency-based and accelerated delivery system. However, the experienced talent pool and the capacity of said provider may be limited in the short term. Provider A provides the highest quality applicants, but is not currently operating at a scale to meet future needs. In contrast, Provider F has the lowest quality candidates and provides the lowest number of applicants for the collaborative and for the region.

IMPROVING QUALITY AND RESPONSIVENESS OF PROVIDER NETWORK

Low — Talent Quality — High

Employer 1's Initial Talent Flow

| Provider F | Provider E | Provider D | Provider C | Provider B | Provider A |

Employer 1 Mid-TFA

Provider F

Provider E

As Employer 1 identifies providers/agencies that have low-quality talent and slow responsiveness to Employer 1's needs, those providers will be phased out.

Provider C   Provider A

Provider D   Provider B

Employer 1 Ideal Talent Flow

Provider F

Provider E

As Employer 1 identifies providers/agencies that have high-quality talent and quick responsiveness to Employer 1's needs, opportunities to increase talent recruitment from those agencies will be coupled with additional collaboration to improve the preparation of those employees, increasing both quality and responsiveness.

Provider C   Provider A

Provider D   Provider B

Low ← Provider Responsiveness → High

Identifying Improvement Opportunities. These types of performance measures and basic and advanced data analytics could provide the basis for more in-depth analysis to identify potential opportunities for improvement including:

- **Forecasting Accuracy.** Can we improve the accuracy in short-term forecasts in ways that reduce differences between forecasted and actual job openings?

- **Improving Tier 1 Provider Yield Rates.** Can we improve performance by increasing the percentage of applicants from partners who meet competency and credentialing requirements and are considered hire-ready (yield

rates)? Can we do this by improving how employers communicate these requirements and/or how providers ensure the quality of applicants? Can we do this in a way that produces value for both employers and Tier 1 partners?

- **Improving Hiring and On-Boarding.** Can we potentially improve performance by improving hiring and on-boarding efficiency and effectiveness for both external hires and incumbent workers who are being upgraded to fill these jobs?

- **Improving Tier 1 Flow Levels and Capacity Utilization of Existing Providers and Internal Sources.** Can we potentially close the gap between demand and supply by increasing the flow levels (number of students/workers) flowing through Tier 1 and internal sources? What is their current capacity, and how can we increase capacity utilization to reach higher flow numbers?

- **Expanding Capacity and Reach in Tier 1 and Tier 2 Supplier Network.** If there is not sufficient overall capacity to close the gap, can we potentially recruit alternative Tier 1 and Tier 2 suppliers into the collaborative network that may provide additional sources of highly qualified applicants? If so, who are the providers that are in the region but are not currently being effectively utilized by the collaborative?

- **Improving Responsiveness and Reducing Lead Times.** Can we potentially improve the responsiveness of the talent pipeline by reducing the lead times for talent development in the provider network and improve the efficiency of our on-boarding strategies to reduce the overall "time to full productivity"?
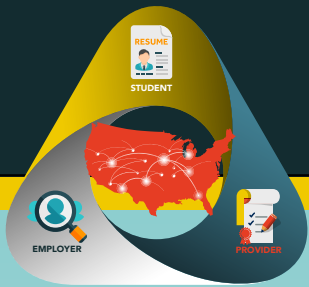
Using the data from Steps 1–3 to answer these basic questions should provide the employer collaborative with a list of potential improvement opportunities that can illustrate the potential payoffs to sharing data for TFA. For example, based on the graphic on page 28, an employer collaborative decides to focus Tier 1 provider improvement efforts on Provider A to explore how to improve scale to meet future needs. It could then give secondary priority to Provider B and Provider C. The collaborative also could decide to not work with Provider E or F to achieve short-term improvements.

Summary and Next Steps

This guide has explored an employer-driven approach to talent flow analysis (TFA) that can be used by regional employer-led partnerships to identify improvement opportunities for talent flows with a focus on critical jobs in key sectors (e.g., manufacturing, health care).

It presents a promising, yet untested, approach to employer-led improvement initiatives based on the sharing and analysis of both employer and public data. TFA requires unprecedented cooperation among employers within a region, in sharing sensitive

information to achieve talent flow improvements. Although large employers have used TFA to improve their own talent flows with their education and workforce partners, employers have not yet worked together to do this at the regional level. As a result, this guide encourages employers to break new ground and start slowly with the assistance of a trusted intermediary such as a business and industry association. It encourages employer collaboratives to work with trusted intermediaries to build consensus and trust over time. Employer collaboratives are encouraged to start by sharing some basic employer and public data to identify immediate improvement opportunities at the points of hiring, on-boarding, and short-term retention. They can then move to more advanced practices that address the entire end-to-end talent management process in regions.

Although employers to date have not shared data to identify joint improvement opportunities as suggested in this TFA guide, the time may be right to further explore and pilot-test this approach. Employers face unprecedented challenges in managing talent pipelines and are exploring new ways to work together at the state and regional levels. State and regional sector initiatives are exploring new ways to increase employer engagement and leadership and leverage national and state data resources.

Leading employers and business and industry associations have a unique opportunity to work with state and regional sector initiatives to use this guide to explore and pilot-test this employer-led approach to TFA. The next steps are for these partners to use this TFA guide to further explore an employer-driven approach and to pioneer the development of more advanced public-private data systems as well as more powerful data analytics. These piloting efforts could also explore how TFA can be used to better identify, implement, and evaluate improvements in talent flows at the state and regional levels.