TALENT PIPELINE MANAGEMENT ACADEMY
Strategy 4: Analyze Talent Supply

Strategy 4
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Introduction

So far, we have covered how employer collaboratives do the following:

- Determine critical business functions and jobs and major talent challenges in building talent pipelines (Strategy 1).
- Identify projected job openings (Strategy 2).
- Identify hiring requirements for filling those jobs (Strategy 3).

Producing this information provides granular data that employers can use to close their skills gaps. It also helps build trust among employer collaborative members and proves that they can work together to produce actionable results.

However, while Strategies 2–3 are critical to determining demand, we now need to introduce supply into our data collection process. Every collaborative must answer the following critical questions:

- Where have we traditionally found talent for new hires? For upskilling opportunities?
- Do we have the necessary supply of talent internally or from external providers to meet our projected demand?
- What is the current and potential capacity of our internal and external pipelines to meet our workforce needs now and into the future?
- What are other potential sources of talent—both internal and external—that can help us meet our workforce needs, including increasing diversity?
- What are the size and characteristics of the overall talent pool within our geographic area, including those populations that could be prioritized for diversity, equity, and inclusion (DEI) initiatives?

Whereas previous strategies concentrated on how to focus and communicate demand, with Strategy 4 we can now do an in-depth analysis of current and potential talent supply. Consistent with the TPM framework and approach, this strategy encourages employers to use their own data to improve talent sourcing strategies. What is more, it gives you myriad tools as well as basic and advanced methodologies to gather and analyze the data in a manner that produces new and important insights on how your collaborative is currently sourcing talent and where they could potentially source talent from in the future.

Specifically, Strategy 4 shows how **back mapping** enables you to identify current and prospective sources of talent, whether internal or external. It also demonstrates how that information can be used to engage in **talent flow analysis**, a method used to analyze how effective your collaborative is at sourcing talent from feeder jobs (i.e., job-to-job flow analysis) and/or current providers (i.e., those providers identified through back mapping) and potential providers. From there you can combine data produced from Strategy 2 (i.e., demand planning) to execute a **supply-demand analysis** specific to your collaborative and its talent pipeline needs. Last, through **talent pool analysis** your collaborative can use data from government agencies and other data providers to analyze the size and characteristics (e.g., demographics) of both the current workforce and learner populations served by their current providers, compared to the size and characteristics of the **working-age population**—the number of people ages 18 to 64 who are residing in the chosen geographic area. This talent pool analysis can include **opportunity populations**—those who traditionally experience barriers to employment—and identify which sources collaborative members can work with to develop a more equitable pipeline.

Strategy 4 encourages employer collaboratives to compile and share information with their providers to promote a shared understanding of where they are in developing a talent pipeline capable of addressing employer needs now and in the future.

Strategy 4 Learning Objectives

1 Describe the role of back mapping, talent flow analysis, supply-demand analysis, and talent pool analysis in Talent Pipeline Management® (TPM) and how these analyses differ from traditional approaches to analyzing supply.

2 Identify the internal sources of talent and the tiers and roles of external talent providers within a talent provider network.

3 Conduct back mapping, talent flow analysis, supply-demand analysis, and talent pool analysis using employer data and other data sources.

4 Create tables, graphics, and other visualization tools that help map internal and external talent sourcing networks.

Strategy 4 Action Plan

	4.2 Defining Talent Pipelines	**4.3 Conducting Back Mapping with Employer Collaborative**	**4.4 Conducting Talent Flow Analysis**
ACTIVITIES Actions taken to achieve desired outcomes	• Inventory potential talent sources (internal and external) • Identify roles/provider tiers of these talent sources • Prioritize talent sources	• Identify critical jobs to include • Determine talent population (e.g., hires or applicants) • Identify current, experienced, and new talent sources • Select survey template and schedule delivery • Determine period for analysis • Select number of provider tiers to include (external) • Examine job-to-job flows (internal) • Finalize survey questions for collaborative members • Prepare collaborative members to participate in survey • Analyze individual employer data • Aggregate collaborative data • Identify ways to increase talent flow from sources/feeder jobs to collaborative members	• Analyze capacity of workers eligible for retraining or potential feeder jobs (internal) • Gather data about completers, enrollees, and course takers from state agencies for each provider (external) and collaborative members that are talent providers • Validate data with provider partners (external) • Analyze internal/cross-collaborative/provider capacity to meet talent demand • Calculate Tier 1 provider talent accepting jobs with collaborative members (external) • Capture destination of talent accepting jobs outside collaborative
MILESTONES Progress points marking significant development	• Inventory of talent sources (internal and external)	• Design and approval of back mapping survey instrument • Completion of survey delivery • Survey responses collected • Back mapping reports developed and presented	• Talent flow analysis • Talent leakage report
OUTPUTS Achievements resulting from actions	Number and percentage of: • Collaborative members identifying providers (internal and external) • Collaborative members committed to back mapping talent sources	Number and percentage of: • Collaborative members completing back mapping survey • Collaborative members validating survey results	• Number of talent sources providing data • Number and percentage of collaborative members engaged in assessing talent leakage

Note: Unit 4.1: The Role of Talent Flow Analysis in TPM covers educational information and therefore is not included in the Strategy 4 Action Plan. This Action Plan is meant to serve as a guide and not an exhaustive list of all the activities, milestones, and outputs your collaborative can achieve.

	4.5 Comparing Projected Demand to Talent Supply	**4.6 Conducting Talent Pool Analysis**	**TPM Web Tool**
ACTIVITIES Actions taken to achieve desired outcomes	• Identify sources of government and provider data to estimate program completions, enrollment, and capacity • Develop supply-demand table comparing projected job openings (Strategy 2) to the supply and capacity of providers • Analyze whether current levels of hiring and retention will be sufficient to meet projected job openings • Analyze the need to hire and retain more completers from these programs, increase completion rates, and/or increase program capacity to meet projected job openings • Analyze where completers are going—talent leakage—if they are not being hired and retained by the employer collaborative	• Identify sources of government and other data on the overall talent pool and opportunity populations • Analyze size and characteristics of the population and labor force in the chosen geographic area • Analyze opportunity populations that could be prioritized in DEI initiatives • Analyze provider capacity and reach to determine gaps in overall pipeline and for priority populations	• Select survey template and schedule delivery • Organize survey data and identify best template for reporting results
MILESTONES Progress points marking significant development	• Supply-demand analysis	• Talent pool analysis including opportunity populations	• Design survey • Complete survey delivery • Back mapping reports developed/presented
OUTPUTS Achievements resulting from actions	• Severity and causes of supply shortage that should be addressed in building talent pipelines	• Size and characteristics of the talent pool • Number of opportunity population talent	• Number and percentage of collaborative members completing back mapping survey(s)

Key TPM Terms and Definitions

Here are the concepts that are most critical for understanding and executing Strategy 4. These terms appear in the order in which they are listed below and are highlighted in blue throughout the chapter.

Back Mapping
A TPM process that helps employer collaboratives identify the major sources of qualified talent on which employers currently rely.

Talent Flow Analysis
A TPM process that helps employer collaboratives work with government agencies and providers to analyze how effectively they are sourcing talent from feeder jobs (i.e., job-to-job flow analysis) and/or current providers (i.e., those providers identified through back mapping) and potential providers.

Supply-Demand Analysis
A TPM process that helps employer collaboratives compare their projected demand for critical jobs within defined time periods (Strategy 2) to the relative number of recent hires, completers, and enrollees, as well as the enrollment capacity of current and potential providers.

Talent Pool Analysis
A TPM process that helps employer collaboratives work with government agencies and other data providers to analyze the size and characteristics (e.g., demographics) of both their current workforce and learner populations served by their current providers, compared to the size and characteristics of the working-age population within a geographic area.

Working-Age Population
The number and characteristics of people ages 18 to 64 who are residing in the chosen geographic area in the most recent time period where data are available.

Opportunity Populations
People in America who have had limited access to educational and professional opportunities and who face barriers to employment and career advancement. These include racial and ethnic groups who experience discrimination, low-income populations, and other populations such as 16- to 24-year-old youth who are out of school or out of work; members of immigrant or refugee populations; individuals impacted by the criminal justice system; people with disabilities; people who have limited English proficiency; and people who are (or who have been) homeless. These populations have traditionally been underrepresented in the workforce, meaning they do not reflect the working-age population in their communities.

Talent Supply Analysis
Made up of four TPM processes that build on one another (back mapping, talent flow analysis, supply-demand analysis, and talent pool analysis), talent supply analysis evaluates the capacity for an employer collaborative's existing and potential provider network to supply the talent employers need in the context of the overall talent pool.

Human Resource Information System
An information technology system that captures all aspects of human resources data in a centralized place and supports employee recruitment, hiring, performance, and benefits management.

Applicant Tracking System
A software application that manages employee recruitment data, including job postings, applicant tracking, screening and scoring, interview management, and hiring.

Capture Rate
The percentage of talent coming from the internal and external talent pipeline (identified providers) that is hired, and/or upskilled, and retained by employers from the employer collaborative or employers within the same industry or geographic area over a designated time period.

Leakage Rate
The percentage of talent coming from the internal and external talent pipeline (identified providers) that is not hired or is hired but not retained by employers from the employer collaborative or employers within the same industry or geographic area over a designated time period.

Job-to-Job Flow
The transition from one job to another, whether intentional or not, that results in retraining for a new role or career advancement. These flows can be as simple as one job to another or can have multiple transitions as a worker is retrained or advanced throughout their career.

Provider Roles
The types of services provided by talent providers within the employer collaborative value stream, from career awareness and exploration to employee upskilling, advancement, and retention. Providers can play one or more roles in one or more tiers, although most play a predominate role in a single tier. For example, a Tier 1 provider that is a staffing agency can provide pre-employment training and onboarding services while also offering a small career preparation program for youth (see **Provider Tiers** definition).

Provider Tiers
The position of providers within talent pipelines in relationship to the employer end-customer. Tier 1 providers (e.g., colleges, staffing agencies, other employers) deliver talent directly to employers, and Tier 2 providers (e.g., high schools) deliver talent to Tier 1, whereas Tier 3 providers (e.g., middle schools) deliver talent to Tier 2. Tiers are relevant only for external talent pipelines.

Talent Inflows

The number and characteristics of people hired by an employer, an employer collaborative, employers within the same industry or industry sector of the collaborative, or employers within the major geographic area defined by the employer collaborative for recruiting talent.

Talent Outflows

The number and characteristics of people previously hired but no longer working for an employer, an employer collaborative, employers within the same industry or industry sector of the collaborative, or employers within the major geographic area defined by the employer collaborative for recruiting talent.

The Role of Talent Supply Analysis in TPM

Talent supply analysis is when we start to build talent pipelines that have the capacity needed to address demand as projected in Strategy 2, setting the foundation for managing the pipeline, which we will cover in Strategy 5. This analysis ultimately answers the following question: What is the capacity for a collaborative's existing and potential provider network to supply the talent employers need in the context of the overall talent pool?

The Four Approaches to Talent Supply Analysis Using TPM

Talent supply analysis in TPM consists of four methodologies that build on one another and make use of the data provided in each to unlock new levels of analysis that produce new insights and unique benefits. Those methodologies include the following:

Back Mapping

Some employers improve their talent recruitment by analyzing where they get their best talent, especially high performers who are most likely to be retained. Employers do this primarily by analyzing employee job performance data against hiring and applicant tracking data, both of which can be found in **human resource information systems (HRIS)** and **applicant tracking systems (ATS)**. TPM builds on these leading practices by using the data and analysis to identify the most productive internal and external sources of talent.

Talent supply analysis in TPM starts with back mapping. Back mapping is the process used to determine where a firm's existing workforce came from for those jobs on which they have decided to collectively focus. A useful place to start is by focusing your analysis on qualified hires that have been retained, though you can broaden your analysis in many ways, including focusing on all qualified job applicants versus those who were hired or those who are more experienced workers.

Back mapping begins by identifying and mapping the existing internal and external talent sourcing networks for supplying the qualified talent needed to fill job openings. This includes reviewing all major sources of talent, including community colleges and high schools. It also includes current employees who are in jobs that have historically provided qualified candidates for critical jobs—because of related skills or well-established career pathways—as well as workers from other employers.

Back mapping can also identify providers outside of the geographic area defined by government supply estimates, providing a more accurate depiction of where employers get their most qualified talent. For example, some healthcare providers may not recruit nurses from all nursing programs within a metropolitan area defined as a labor market area for government supply data. Instead, they might recruit from one or more nursing programs in another metropolitan area, where they get nurses who are a better fit and have higher rates of retention. The nursing programs from this metropolitan area would not be counted in government supply estimates where these healthcare providers are located.

Next, back mapping helps identify the relative position of the external talent provider in the network, from the most direct resource for an employer (Tier 1) to a more indirect role (Tier 2). It also differentiates sources by the role they play based on the services they provide (e.g., pre-employment training).

Talent Flow Analysis

Talent flow analysis builds on back mapping and addresses the capacity of internal sources of supply (e.g., number of people employed in feeder jobs) and the capacity of existing external providers of talent (e.g., actual or potential enrollments in training programs).[1] This practice combines data held by employers, government, and provider partners to map overall flows into and out of collaboratives and larger regions for both existing and potential talent providers.

Using talent flow analysis, your collaborative can gain important insights that go far beyond what you learned through back mapping. This includes being able to determine the "bandwidth" of the pipeline, in terms of the number of people employed in internal feeder jobs and the number of qualified people completing and enrolling in programs from existing and potential talent providers as well as their potential enrollment capacity. It also includes your effective utilization of this pipeline, such as **capture and leakage rates** of qualified talent coming from your talent sourcing network. For example, a collaborative may discover that while data on completers from relevant Surgical Technologist programs identified in your back mapping appear to meet the demand of new and replacement positions projected in Strategy 2, collaborative members are only capturing 65% of those who completed programs. This capture rate information will be important to achieve an accurate supply-demand analysis.

Supply-Demand Analysis

Supply-demand analysis builds on talent flow analysis by combining it with the demand projection information the collaborative collected under Strategy 2. This is used to determine whether there is a supply of qualified talent coming from existing talent sourcing providers to address the projected needs of all employers in the collaborative. It also addresses whether these providers have the capacity to increase this supply to meet projected demand. The data will allow your collaborative to ascertain what actions, if any, can or should be taken with current talent providers to ensure they can meet the projected needs of employers (assuming you choose to continue sourcing from the same providers, a topic covered more in-depth in Strategy 5).

Supply-demand analysis can also help make the case for identifying other potential sources of talent from outside a state or region when the available labor force is insufficient to enroll more talent in the programs of state and regional education and training providers. This is common in some regions of the country and in rural areas with declining labor pools and low unemployment rates. It can also help identify alternative, nontraditional sources

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[1] This unit is based on a U.S. Chamber Foundation publication and is provided as a background resource on the TPM website: Andrew Reamer, Robert Sheets, and David Stevens, Analyzing Talent Flow: Identifying Opportunities for Improvement (Washington, D.C.: U.S. Chamber of Commerce Foundation, 2015).

of talent, including nonprofit organizations that provide services to adult populations. For example, an employer collaborative may assume that high schools will continue to be the major sources of future talent. However, declining school-age populations in many regions may require employers to focus more attention on available adult populations.

Talent Pool Analysis

Talent pool analysis builds on the data produced under supply-demand analysis. This information is combined with government agency and provider data to analyze the size and characteristics (e.g., demographics) of both their current workforce and learner populations served by their current providers, compared to the size and characteristics of the working-age population within a geographic area. Talent pool analysis can be used to gain important and unique insights into the industry and occupational distribution of available workers, but, more importantly, it can be used to support DEI goals.

For example, an employer collaborative that has a goal of increasing the diversity of its workforce may use talent pool analysis to benchmark its current workforce against the working-age population in a defined geography. This will help get the facts straight on how representative their current workforce is compared to the community. They can then analyze the size and demographic makeup of the learner population served by the programs and providers they source from to ascertain if they can reach the priority populations (e.g., Hispanic or Latinx, veterans) that are most important to them. The data made available using this approach can help employer collaboratives set DEI goals and analyze how effectively they can reach these goals should they rely on their existing providers. The data also set up important conversations about how they may take action in order to produce different results (e.g., increase the number of diversity hires).

Comparing TPM to Traditional Approaches to Supply-Demand Analysis

Talent supply-demand analysis in TPM is different from more traditional approaches to supply-demand analysis used in education and workforce planning. Most traditional supply-demand analyses are based on cross-walking program enrollments (using Program Instructional Codes, or CIP codes) in a given geographic area—that are assumed to be the source of supply for employers in the same area—with occupational projections (using Standard Occupational Classification, or SOC). These numbers are commonly provided by state agency data systems to which universities, college, schools, and other government-recognized providers regularly report enrollment and completion data. This information is often reviewed alongside labor market projections (see Strategy 2) to examine supply relative to projected demand. See Table 4.1 for an example of a typical CIP-SOC crosswalk with associated jobs opening and completion numbers.

Table 4.1: Example CIP-SOC Crosswalk for Registered Nurses

SOC2018 Code	SOC2018 Title	Avg. Annual Job Openings (Growth and Replacement)	CIP2020 Code	CIP2020 Title	Avg. Annual Completers for Selected Universities
29-1141	Registered Nurses	427	51.3801	Registered Nursing/ Registered Nurse	395
			51.3803	Adult Health Nurse/Nursing	25

These same data are used by state government and economic development organizations to support business development and attraction efforts. The data are used to demonstrate that there is an available workforce in the area (e.g., a supply of newly credentialed engineers), which can be a key factor in making site selection or location expansion decisions. However, the assumptions made about how employers are sourcing talent using this traditional approach often don't prove useful in producing insights needed on actual talent supply.

The TPM approach differs from traditional supply-demand analysis in a few important ways. First, it does not use general or total talent supply data (provided by government), but rather data gathered directly from your employers. It gets the facts straight by focusing on existing or potential sources of talent that employers themselves identify for their most critical jobs (back mapping).

Second, it goes deeper into analyzing the capacity of actual talent providers and how effective your employers have been in sourcing and retaining talent from those providers (talent flow analysis). Next, talent supply analysis allows you to analyze current and potential supply relative to projected demand data produced by your collaborative in Strategy 2 (supply-demand analysis).

See Table 4.2: Comparing Traditional Supply-Demand Analysis to TPM for a side-by-side comparison of the two approaches.

Using the TPM framework and approach to talent supply analysis, you and your collaborative will be able to utilize a variety of tools and methodologies to unlock new levels of analysis that are more granular, actionable, and relevant to your workforce needs. It is a critical step before building the talent pipeline (see Strategy 5) and helps you get your facts straight about the actual and potential supply relative to demand before you choose where to start in building your talent pipeline and who to start with.

Table 4.2: Comparing Traditional Supply-Demand Analysis to TPM

Feature	Traditional Approaches	TPM Approach	Unique Benefits Achieved Through TPM
Objective	To compare the current number of completers from all education and training programs (i.e., supply) to the projected number of job openings (i.e., demand) within a government-defined geographic area to determine if supply meets demand	To compare the number of hires and completers from programs identified by collaboratives as current sources of talent to the projected number of job openings for critical jobs (Strategies 1 and 2) to determine if the number of recent hires meets projected demand and, if not, whether demand could be met by improving the utilization (percentage of completers hired), completion rates, and enrollment levels and capacity (potential enrollment levels) of current providers and/or potential new providers	TPM helps identify current sources of talent and assesses their utilization and capacity—and the capacity of potential new providers—to meet projected demand as well as meet hiring goals for priority populations.
Data Source	State labor market composition data and reporting systems for the number of program completers from state-financed and regulated providers, including schools, colleges, and universities	Direct from employer collaborative members supplemented by data from providers and state reporting systems	TPM makes available current and historical hiring data direct from employers to focus and customize supply-demand analysis for the employer collaborative members.
Time Period Covered	Annual supply estimates reported in time periods consistent with government reporting requirements	Annual supply estimates reported in time periods consistent with projected employer demand	Employers determine what time period is preferred for their workforce planning efforts.
Targeted Jobs	State occupations and occupational clusters defined by SOC system	Selected and defined by employer collaborative members	TPM focuses supply-demand analysis on the business functions and occupations defined by the employers themselves.
Key Assumptions	- That national and state SOC and CIP crosswalks accurately identify which programs produce completers qualified for selected jobs - That education and training providers within the same government-defined labor market area are the major suppliers of talent for employers within that labor market area	- That employers are capable of producing and sharing data on sources of qualified hires and qualified applicants - That collaboratives can access and be inclusive of provider and government labor market supply data as part of their analysis of actual and potential talent supply	Data produced through TPM expose historical talent sourcing trends and patterns among employer collaborative members that can be used to inform critical talent pipeline decisions, such as identifying preferred providers that have the capacity to meet projected demand and meet hiring goals for priority populations.

Searching for Supply Exercise

This exercise illustrates why employer collaboratives should use talent supply analysis in managing the talent pipeline and not rely exclusively on traditional supply-demand data to determine available supply.

A newly formed healthcare collaborative consisting of four healthcare providers has decided to focus on a critical shortage of registered nurses, especially registered nurses in specialty areas (e.g., ICU). The collaborative is also interested in both increasing the diversity of its hires and supporting more veterans entering the profession. A representative of the collaborative offered to reach out to their contacts at state agencies to obtain information that can help it assess the available supply of registered nurses.

The state agency partners identified two universities in the state-defined labor market area that offered nursing programs. They focused their analysis on a specific SOC code based on their understanding of what the employers likely needed. They then identified the CIP codes that corresponded to the SOC code and produced a crosswalk.

The employer collaborative representative received an email that included the data found in Table 4.1. In addition, the email referenced a grant given about three years ago by the state's workforce agency to the universities that are included in the CIP-SOC crosswalk. The grant was intended to expand the capacity of the nursing programs to address a nursing shortage. Given the size of the previous grant investment, the state agency partners were surprised that the healthcare collaborative members were still experiencing a shortage.

After reviewing the exercise, use the data found in Table 4.1 (page 14) to discuss the following:

1 Based on the data provided, what insights can the employer collaborative derive regarding talent supply relative to demand? Is any information missing?

2 What are some reasons for why the employer collaborative is experiencing a continued shortage of nurses given that the state workforce agency has recently made investments to increase the supply of nurses?

3 What assumptions were built into the table? And do those assumptions impact the ability of the employer collaborative to draw conclusions? Explain.

4 What new insights might be derived by using TPM and its unique approach to talent supply analysis?

Unit 4.2

Defining Talent Pipelines

Talent pipelines are either internal or external, but can be combined for a comprehensive approach that includes providing career pathways for newly trained or credentialed individuals as well as for existing workers. In TPM, you should back map and engage in talent flow analysis for internal or external pipelines to provide the necessary data to begin building your talent pipelines in Strategy 5.

Internal Pipelines: Job-to-Job Flows and Feeder Jobs

Internal talent pipelines are best understood in terms of internal **job-to-job flows**. Employers can use Strategy 4 to identify the feeder jobs employees held prior to the critical job that is the focus of the collaborative. Feeder jobs can range from entry-level jobs to mid-level jobs that are commonly held prior to being promoted. For example, in retail industries, a critical targeted job could be store managers. One entry-level feeder job could be sales associates; often sales associates become shift managers, progress to assistant store managers, and finally move on to store manager positions.

When exploring internal talent pipelines it is important to focus on those job-to-job flows that yield the greatest upskilling opportunities, and not just on feeder jobs. There may be many one-off promotions or career advancements that have occurred, but the focus of the collaborative should be on where there is—or could be—direct connections or pathways between jobs resulting in either retraining for new roles or career advancement.
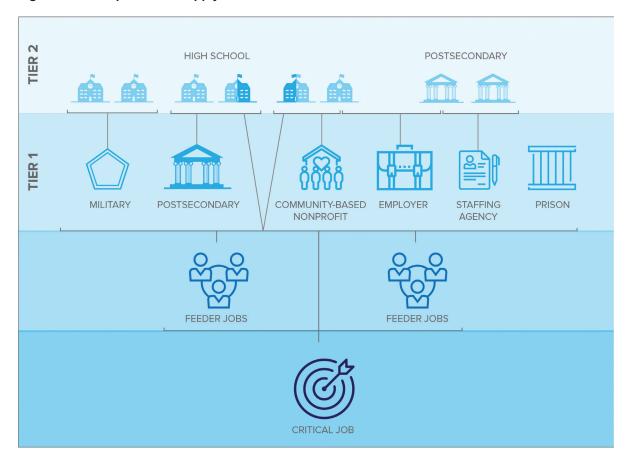
External Pipelines: Identifying Tiers and Roles

External talent pipelines are best understood in terms of **provider roles** and **provider tiers**. In TPM, Tier 1 providers are those that supply qualified workers directly to employers. Tier 1 providers could be job boards, staffing agencies, or education and training programs that provide direct placement to employers. Tier 1 providers can also include other employers.

Tier 2 providers feed talent to Tier 1 providers, forming a value chain with education and training services, and adding incremental value at each stage of development. For example, a Tier 2 provider such as a high school or community college may refer or transition learners to other colleges, universities, the military, and employment and staffing agencies for additional value-adding services before they reach employers through Tier 1 providers. See Figure 4.1: Example Talent Supply Chain Network for visual representation. Tier 3 providers, such as middle schools, boot camps, or high schools, feed talent into Tier 2 providers.

Providers can sometimes function as more than one tier. For example, a college can be both a Tier 1 and a Tier 2 provider depending on whether their program completers are going directly into employment or if they are going to another provider prior to employment.

Figure 4.1: Example Talent Supply Chain Network

In the TPM context, roles refer to the specific services that add value to employers and learners. For example, some providers offer employment services that recruit, screen, and refer qualified workers to employers, whereas others provide education, training, and credentialing services. Still other providers offer career awareness and exploration services without providing education and training or recruitment services directly tied to employment, but feed into programs that do. In some cases, providers deliver several services and play multiple roles.

Back mapping and talent flow analysis help identify the various roles that existing or potential providers play at different tiers of the talent pipeline. These processes provide the necessary starting point for building future talent pipelines that have the capacity to meet the needs projected in demand planning. They provide an important baseline analysis that can help do the following:

- Identify the key roles and tiers of the major existing talent sourcing providers and their relative impact on talent pipelines.

- Identify other talent sourcing providers and their potential roles in future efforts to diversify and expand talent pipelines.

Exercise 2

Back Mapping Exercise

The exercise below demonstrates how providers can play various roles at different tiers of the talent pipeline and the role of back mapping.

Faced with a chronic shortage of skilled machinists in their region, the Southcentral Manufacturing Consortium used a back mapping process to determine where members got their qualified CNC machining talent. It found that collectively, members had hired 200 qualified employees over the past three years from internal and external sources.

The survey responses provided the following information:

- One hundred employees were promoted from machine operator feeder jobs. Fifty-five of these operators were sourced from the DEF employment agency with no prior education and training; the other 45 were sourced from the Southcentral Community College CNC Machining Program.

- One hundred employees were hired directly from external sources. Twenty-five were from the DEF employment agency, 35 directly from other regional manufacturers, 30 from the Southcentral Community College CNC Machining Program, and 10 from a regional high school career and technical education program.

- Fifteen of the DEF-sourced employees received their CNC training and credentials from Southcentral Community College's CNC Machining Program, as did 20 of the employees who were sourced directly from other regional manufacturers.

- Half of those employees who received training from the community college program entered the program directly from manufacturing technology programs offered by two of the four regional high schools, including the high school career and technical education program referenced above.

- A quarter of the same group entered the college directly from the Southcentral community-based agency that provides a manufacturing boot camp for low-income adult residents.

After reviewing the exercise, discuss the following:

1 Identify the Tier 1 and Tier 2 providers and what roles they play.

2 Which provider, if any, plays more than one tier or role?

3 Name examples of Tier 1 and Tier 2 providers in your community for an employer or employer collaborative. In addition to their tier, identify the roles they play.

Unit 4.3

Conducting Back Mapping with Employer Collaboratives

With an understanding of both internal pipeline career pathways and external pipeline tiers and roles, we now turn to conducting basic and advanced levels of back mapping using employer data. It is important to keep in mind that back mapping is a discovery process where we are getting our facts straight on where talent is sourced, whether internally, externally, or both. The job and target population you are conducting back mapping for will determine which type of back mapping process and additional analysis follows. Below, we discuss back mapping of internal and external pipelines.

Starting the Back Mapping Process

Here are two to three important decisions that will determine the scope of any back mapping survey:

1 **Choosing a Population to Study**
The first decision is the talent population to be analyzed, which can include (1) the highest-performing (top talent) qualified hires who were successfully retained, (2) all qualified hires who were successfully retained, or (3) all qualified applicants who met hiring requirements. The goal is to identify where they received their education, training, or credentialing that made them qualified for the job (e.g., high schools, colleges, universities, other training providers). This information can be broken down further by subgroups, such as women, people of color, veterans, and individuals with disabilities, which is important for prioritizing recruitment and advancement efforts for specific groups, as well as pursuing DEI initiatives. (Talent pool analysis will be discussed further in Unit 4.6.)

2 **Determining the Time Period to Analyze**
The second decision is the time period for analysis. This should be between one and five years. The time period should be sufficient to know whether qualified hires were productive and were retained by employers for a normal or expected length of employment.

3 **Selecting the Number of Tiers**
If conducting external back mapping, the third decision for a collaborative to make is how far back to map in the talent pipeline. The simplest approach is to identify only Tier 1 sources and where workers from those sources received their most recent training and credentials that made them qualified applicants. An advanced approach would identify additional tiers, including feeder schools and programs.

Internal Pipeline Surveys

For many employers, this may be their first time examining their job-to-job flows. They may also be looking into their HRIS for answers that are not readily available. The purpose of back mapping internal pipelines is to get the facts straight on the internal job-to-job flows that presently exist. Back mapping is used as a tool to identify the job-to-job flows within a company or across a collaborative.

As shown in Table 4.3, employer collaborative members could back map job-to-job flows within their companies to determine the most common pathways taken by employees and their relative contribution to filling store manager jobs compared to new hires. These pathways could also be broken down by different subgroups that are important to DEI goals and initiatives. This process helps employers get the facts straight on current or existing upskilling pathways and find where there may be opportunities to improve or make them more intentional and inclusive.

Table 4.3: Back Mapping Internal Job-to-Job Flows for 100 Store Managers

Feeder Job	Feeder Job	Feeder Job	Feeder Job	(#) Store Mangers Who Indicated Path
External Job →	Sales Associate →	Assistant Manager →	Store Manager	40
External Job →		Assistant Manager →	Store Manager	30
External Job →			Store Manager	10
External Job →	Sales Associate →		Store Manager	20
				TOTAL: 100

This is important information for determining which feeder jobs should be included in demand planning (i.e., Strategy 2) projections because of the need to backfill these feeder jobs. It is also important for determining which jobs to include when conducting competency mapping for career pathways (i.e., Strategy 3).

For employers or collaboratives that are pursuing both internal and external talent pipelines, back mapping job-to-job flows provides the necessary information for determining which feeder jobs should be included in back mapping the external talent pipeline, to which we now turn.

External Pipeline Surveys

Unlike internal pipeline surveys, when exploring external pipelines, there are two ways your collaborative can organize back mapping: (1) basic, or (2) advanced. Because most employers have never done back mapping of their talent sources and do not have HRIS that do this for them, employer collaboratives should start with a basic approach and then

move to more advanced practices later (see Table 4.4: Basic Approach to Back Mapping Example and Table 4.5: Advanced Approach to Back Mapping Approach Example for examples of each approach).

A basic survey, as demonstrated in Table 4.4, starts with recent qualified hires who were successfully retained and asks employers to identify only the Tier 1 provider and the source of the education, training, and credentialing that led to the individuals being qualified for the target job if that source is not the Tier 1 provider.

For example, a community college may be the Tier 1 provider and also deliver the education, training, and credentialing that meets an employer's hiring requirements. In contrast, a Tier 1 provider may be a staffing service that identifies qualified talent from universities and colleges but does not directly deliver training. It is important to note that what makes hires qualified may be completing a program and earning a credential or taking specific courses associated with a program.

Table 4.4: Basic Approach to Back Mapping Example

Population	Number of New Hires	Tier 1	Education and Training Providers
Hires	50	Employment Agency A (20)	Community College A (12)
			Community College B (8)
		Community College A (24)	
		Community College B (6)	

An advanced survey, as illustrated in Table 4.5, allows employers to address not only recent qualified hires but also all qualified applicants who applied for positions. It also distinguishes one or more types of talent based on experiences, such as newly trained workers, experienced workers, and current workers. Furthermore, an advanced survey also allows employers to map multiple tiers that make up the individual's career pathway so that they can see where Tier 1 and even Tier 2 providers are sourcing their people.

Table 4.5: Advanced Approach to Back Mapping Example

Population	Number of New Hires	Tier 1	Tier 2	Tier 3
Experienced Workers	20	Employment Agency A (20)	Community College A (12)	High School A (6)
				High School B (6)
			Community College B (8)	Boot Camp (8)
Newly Trained/ Credentialed Workers	30	Community College A (24)	High School A (16)	Middle School A (10)
				Middle School B (6)
			High School B (8)	Middle School C (8)
		Community College B (6)	High School C (6)	Middle School D (6)

For example, an advanced survey would allow employers to identify the Tier 2 or Tier 3 high schools that feed learners to university and community college programs, and even the middle schools that feed these high schools. This information is important if, for example, employers wish to target career awareness and exploration investments in a way that improves their existing talent pipeline providers. Finally, an advanced survey allows employers to select one or more groups, such as veterans or women, or show demographic breakdowns by gender, age, racial/ethnic group, or other demographic characteristics. It also allows employers to show breakdowns by prioritized opportunity populations.

Back Mapping Steps

With these key decisions made about the scope of your survey, you can begin the two-step back mapping process, regardless of whether you are starting with internal or external talent pipelines.

1 **Employers Analyze Their Data**

Each employer in the collaborative analyzes its individual-level data on where it sources qualified talent, from both internal or external sources. In back mapping external pipelines, the collaborative must choose between either a basic or advanced survey. These data should cover a baseline period of one to five years. Employers can collect these data from their HRIS, ATS, or other types of data sources. Employers can also directly interview or survey these qualified workers recently hired into the targeted positions, or analyze their resumes in personnel files.

2 **Host Organization Aggregates the Data**

Employers then provide data to the host organization managing the collaborative so they can be aggregated further and shared with other collaborative members in a manner that protects proprietary information. The data can be formatted in summary tables and figures for the selected time period. As with any information, back mapping data on current employees, recent hires, and qualified applicants should be treated as confidential, proprietary data that should never be shared with other employers and partners.

Employer collaboratives can choose to conduct the needs assessment (demand planning and hiring requirements) survey(s) described in Strategies 2 and 3 and the back mapping survey outlined in Strategy 4 at the same time or separately. Employer collaboratives may want to conduct these surveys separately at first and then combine them later as employers become more experienced in completing and using these surveys and becoming more focused on the targeted jobs and providers they are addressing.

Unit 4.4

Conducting Talent Flow Analysis

Back mapping is designed to help improve how employers source talent in several ways, such as strengthening partnerships with internal and external talent sources that have demonstrated providing qualified talent. But there are limits. Back mapping does not, for example, provide data on the bandwidth or capacity of the existing sources of talent that might not be fully utilized by the employer collaborative, including the capacity of existing sources to provide a more diverse talent pool. It also does not capture data on providers that are not identified by employers and may provide alternative sources of talent in the future. As a result, back mapping can result in maintaining a narrow focus on what has been done in the past without considering changes that may result in a broader and more diverse applicant pool. Finally, it does not address where qualified talent goes after leaving employer partners and whether talent is retained in the region.

To address these issues, collaboratives can execute a comprehensive talent flow analysis that combines employer data with other data sources, including the government and talent providers. As with back mapping surveys, employer collaboratives should start with a basic approach and then move to advanced practices.

Once back mapping has occurred, the employer collaborative analyzes the aggregated results to identify opportunities for improving talent flows. For internal talent pipelines, this step can include identifying excess capacity or untapped talent from within the organization that can be available for upskilling. For external talent pipeline mapping, this step can include identifying the most widely used talent providers and those that are underutilized—or not used at all—by members of the collaborative. Employers may also identify other providers—or other internal jobs—that have not been tapped into but could be included in talent flow analysis. This information can be included to indicate potential future providers to help address the need for more capacity in the talent pipeline or to accomplish other objectives, such as reaching DEI goals. This analysis provides the basis for moving to advanced levels of back mapping and more comprehensive talent flow analysis.

Basic Approach: Analyzing Internal Talent Pipeline Capacity

The most basic approach for internal talent sourcing analyzes the number of employees currently in the major feeder jobs identified in back mapping relative to the number of employees in critical jobs. You can also break down the numbers of workers in these feeder jobs by subgroups that are important to meeting DEI goals. And you can show trends, including whether the number of employees in those positions is increasing or decreasing.

Table 4.6 offers a visual representation of data on internal talent pipeline capacity based on identified feeder jobs.

Table 4.6: Feeder Job Capacity for Store Managers

Feeder Jobs	Five-Year Average	Trend
Assistant Store Managers	300	↑
Sales Associates	5,000	↑

Basic Approach: Analyzing External Talent Pipeline Capacity

The most basic approach for analyzing external capacity examines the number of people enrolling in and completing programs. This can be thought of as the bandwidth of the pipeline and should be compared to the number of people who could be enrolled given existing resources. This is important because employer collaboratives should initially focus on programs that have historically provided qualified hires and that have the potential capacity to meet projected demand. When soliciting data, employer collaboratives should include both existing and potential providers and their possible enrollment capacity. This basic approach involves three major steps that will vary depending on whether state agencies have the data needed and are willing to provide it to employer collaboratives:

1 **Employer Collaboratives Gather Data from State Agencies if Available.** Members of the employer collaborative compile a list of providers and their programs based on the back mapping results. Specifically, this process identifies the sources that provided the education, training, and credentials needed for candidates to be considered qualified for the targeted position. This list should include physical locations of the providers.

The collaborative sends this information to the state higher education agency (typically the entity that submits data to the Integrated Postsecondary Education Data System, commonly known as IPEDS) that is responsible for producing supply data. The collaborative then asks the agency to work with other education and workforce agencies to provide data on the number of completers from both credit and noncredit programs for (1) these identified providers and programs and (2) other providers and programs that have the same or similar programs as defined by government program classification systems (e.g., CIP codes).

The employer collaborative should ask for a minimum of three to five years of data to better understand trends. They should request data on (1) the number of graduates or completers receiving credentials, (2) the number of program enrollees, and (3) the number of available enrollments given existing resources (program capacity).

2 **Employer Collaboratives Gather Data from Talent Providers.** If the state agencies have the data and are willing to provide them, the employer collaborative then sends these data to selected talent providers to validate or confirm the information provided by state agencies for the selected time period and to ask them for supplemental data, when needed, on program enrollees, completers, and number of available enrollments given existing resources. These supplemental data could include breakdowns by subpopulations if relevant to DEI initiatives. Requesting supplemental data will be necessary in many states that do not have complete information on all types of talent providers and all types of programs offered by these providers, such as noncredit programs offered by universities and community colleges. Employer collaboratives may also ask for information on additional courses, rather than full programs, that prepare people for the targeted jobs. Courses can be as effective a metric to consider if a particular course results in qualified hires. Requesting course information can be particularly useful for those in STEM-related fields for career technical education programs. Take note, however, that the number of course-takers can include duplicates who may be enrolled in courses that are part of more than one program.

These talent providers should also be encouraged to provide data on additional programs that they feel might be related to the targeted jobs. These program-level data are very important because employers recruit from specific programs that are related to specific jobs, in most cases.

If state agencies do not provide the data in Step 1, then one alternative is to collect all program information directly from talent providers, if available. This should include providers that connect with the state education and workforce systems as well as community-based nonprofit organizations and related social service agencies that may provide services to opportunity populations.

3 **Employer Collaboratives Analyze the Data and Produce Supply Reports.**
The employer collaborative then analyzes the bandwidth of the existing or potential pipeline and compares it with projected demand over the same time period, as determined by the collaborative in Strategy 2. If an employer collaborative has decided to carry out Strategy 4 in advance of Strategy 2, it can revisit this exercise. This analysis should focus on completers but also look into the potential capacity resulting from leveraging more enrollees and course-takers, and identify trends to incorporate into performance measures in Strategy 5.

Although employer collaboratives traditionally do not select preferred providers until after they have an understanding of their talent supply, connecting the data in this way is a helpful entry point to identifying which providers should be considered as preferred given their abilities to meet demand needs. Selecting preferred providers, and taking bandwidth into account, will be further discussed in Strategy 5.

Table 4.7: Talent Pipeline Capacity Analysis offers a visual representation of communicating data on potential yields to collaborative members.

Table 4.7: Talent Pipeline Capacity Analysis

Provider/Program	Enrollment Capacity		Enrollees		Completers	
	Three-Year Average	Trend	Three-Year Average	Trend	Three-Year Average	Trend
University A, Program A	40	▬	20	▲	15	▲
Community College A, Program B	30	▼	20	▼	18	▲
Community College B, Program A	40	▬	40	▲	30	▲
Community College B, Program B	30	▲	30	▲	25	▲
Community-based Nonprofit, Program A	40	▬	30	▲	27	▲
Total	180	▬	140	▲	115	▲

Advanced Practice: Analyzing Talent Inflows and Outflows

After analyzing talent pipeline capacity, some employer collaboratives might want to move to advanced practice to analyze **talent inflows** and **talent outflows**. In recent years, most states have built state longitudinal data systems that link individual-level data from publicly funded and approved education and training programs with employment data from their state unemployment insurance wage record systems. These systems can be leveraged by employer collaboratives to identify the leakage and capture rate for both internal and external talent pipelines.

These additional data sources add two important pieces of information:

- **Capture Rate and Talent Leakage from Tier 1 Providers and Upskilling:** Back mapping external pipelines identifies flows of talent from Tier 1 providers to collaborative members. For internal talent pipelines, it identifies flows of talent that have been retrained for other roles or that were in feeder jobs and advanced into a target position. It does not, however, provide information on the capture rate of talent by collaborative members. Advanced practice via talent flow analysis allows for collaboratives to determine how much talent is lost to other employers within or outside of the region.

- **Talent Leakage from Collaborative Employers:** Employers may also want to know where talent goes after leaving them, whether they were sourced from an external partner or upskilled from within. Talent flow analysis can capture this information and shed light on whether talent is retained by other members of the collaborative, remains within the region, or has separated entirely from the collaborative and region.

This information can be organized into tables to show the capture and leakage rates of talent regardless of whether you are starting with internal or external talent pipelines. It can answer questions like, how many upskilled workers were retained by an employer or within the collaborative versus how many were lost to other employers? Or, what percentage of program graduates from a Tier 1 provider are being employed by our collaborative members versus going to other employers within our region? When combined with data gathered while analyzing talent source capacity, you can determine your effective utilization rate of talent sources, whether internal, external, or both.

See Table 4.8: Upskilling Capture Rate for how this analysis can inform internal talent flow analysis, and see Table 4.9: Talent Provider Capture Rate for examples of additional data to include for external pipeline talent flow analysis.

An advanced talent flow analysis provides valuable information when implementing the remaining TPM strategies, which include managing performance, providing incentives, and continuously improving talent supply chains. The analysis might require working with more than one state when collaboratives source talent from multiple states. This is especially important in metropolitan areas or larger rural regions that span more than one state.

Table 4.8: Upskilling Capture Rate

Upskilling Program	Number of Upskilled Workers in Past Three Years			
	Employed by Collaborative Members in Region	**Employed in Region but Not by Collaborative Members**	**Employed Outside of Region**	**Not Employed/ Unknown**
Retrained Workers for New, Emerging, and Changing Jobs	53	5	25	2
Career Advanced Workers	45	10	5	5
Career Advanced Workers from Diversity Populations	14	6	2	0

Advanced practices for external pipeline talent flow analysis can be extended even further to identify potential recruitment sources from outside the state or region, particularly when there is an insufficient labor pool available within an employer's state or region. This approach could involve identifying outside states and regions from which talent providers have been successful in recruiting learners. It could also involve analyzing working-age population migration patterns to identify potential states and regions from which to recruit, and identify providers that have related programs in these states and regions.

Table 4.9: Talent Provider Capture Rate

Provider/Program	Number of Graduates with Required Credentials in Past Three Years			
	Employed by Collaborative Members in Region	**Employed in Region but Not by Collaborative Members**	**Employed Outside of Region**	**Not Employed/ Unknown**
University A, Program A	53	5	25	2
College A, Program A	45	10	5	5
College B, Program A	14	6	2	0
Vocational School A, Program A	10	19	10	5

Talent Flow Analysis Exercise

The example below illustrates how employer collaboratives can transition from back mapping to talent flow analysis.

The healthcare collaborative referenced in the first exercise has decided to proceed with a back mapping survey for nursing, with a focus on registered nurses. The host organization convening the collaborative surveyed employer members to determine from where they sourced their recent qualified hires, to get a better understanding of the collaborative's talent sourcing patterns. Member employers were asked to identify nursing programs that were the sources of their nursing hires over the past two years.

Each employer reviewed its HRIS records and provided information on the total number of hires for each nursing program and any feeder program that the hires completed.

The employer collaborative host organization then compiled the data, resulting in a list of three bachelor of science in nursing (BSN) providers and two associate of science in nursing (ASN) feeder programs. One BSN program and its ASN feeder program were within the metropolitan area (referenced as University A and Community College A, respectively), but two were from outside of the region (referenced as University B and University C) and supplied by the same ASN feeder program (referenced as Community College B).

Next, the employer collaborative conducted talent flow analysis and requested information on the total number of enrollees and graduates in these programs, as well as the capacity of these programs. It also requested information from another BSN program outside of the region (referenced as University D), with which it did not have a relationship, but given the diverse student population, sourcing from the program could help collaborative members further diversify their front-line workforce, which is a priority for them.

Last, the collaborative requested information from its state labor agency to merge employment data with provider data, to ascertain how much talent it was capturing from each provider.

The host organization compiled the results of the survey and shared the findings with its employer members. The findings are presented in Tables A–C.

1 of 2

Table A: Healthcare Collaborative Back Mapping Results

Population	Tier 1	Tier 2
New Hires	University A, in region: 15	Community College A, in region: 12
	University B, outside region: 25	Community College B, outside region: 15
	University C, outside region: 10	Community College B, outside region: 6

Table B: Healthcare Collaborative Talent Pipeline Capacity Analysis

Provider	Enrollment Capacity	Enrollees	Completers
University A, in region	550	550	45
University B, outside region	450	400	76
University C, outside region	225	225	93
University D, outside region	150	115	50
Community College A, in region	250	250	30
Community College B, outside region	400	378	85

Table C: Healthcare Collaborative Talent Flow Analysis

Provider	Employed by Collaborative	Employed in Region but Not by Collaborative	Employed Outside of Region	Not Employed, Unknown
University A, in region	15	5	13	12
University B, outside region	25	10	28	13
University C, outside region	10	5	55	23

After reviewing the findings, discuss the following:

1 Based on the outlined scenario, what types of insights do employers have now that they did not have before, compared with the original supply-demand analysis provided in Exercise 1?

2 What decisions could employers consider based on this new information?

3 What information is missing or what questions still need to be addressed before employers begin making decisions about who will be in their talent supply chain moving forward?

Unit 4.5

Comparing Projected Demand to Talent Supply

Talent flow analysis provides the foundation for employer collaboratives and their partners to do a more precise and targeted supply-demand analysis that addresses their most pressing short-term and long-term talent challenges. Employer collaboratives can choose to do a basic or more advanced approach to supply-demand analysis.

In taking the basic approach as shown in Table 4.10, employer collaboratives and their provider partners compile data on projected demand and supply based on comparable time periods. These data should include:

- **Projected Demand:** The number of job openings projected for a chosen time period (e.g., two years) based on the results of Strategy 2

- **Program Completers Hired and Retained:** The number of program completers who were hired and retained by the employer collaborative members over the most recent baseline time period (and consistent with length of the projection time period)

- **Program Completers:** The total number of enrollees who completed their programs over the most recent baseline time period (and consistent with length of the projection time period)

- **Program Enrollees:** The number of learners who are enrolled in programs over the most recent baseline time period (and consistent with length of the projection time period)

- **Program Capacity:** The maximum number of learners who can be realistically enrolled in programs given existing resources (e.g., budget, instructors, equipment, lab capacity) over the most recent baseline time period (and consistent with length of the projection time period)

Table 4.10: Basic Approach to TPM Supply-Demand Analysis Example

Critical/ Feeder Jobs	Projected Job Openings (for two years)	Program Completers Hired and Retained (over the past two years)	Program Completers (over the past two years)	Program Enrollees (over the past two years)	Program Capacity (over the past two years)
Registered Nurses	90	80	100	130	130
IT Network Administrators	35	15	15	25	35

Employer collaboratives should start the analysis by comparing projected demand to the current number of completers who are potential job applicants. If the supply does not match the demand, the employer collaborative should assess whether the program could meet the employers' needs if it increases capture rates, increases

completion rates, and expands enrollment. Where there are capacity constraints, an employer collaborative will likely need to identify additional programs to source from in order to close the gap between supply and demand.

In most cases, supply can best be increased within the shortest time period by improving either the hiring and retention of learners who are enrolling in programs and/or the number of learners completing the program. If those strategies are insufficient, employer collaboratives can then explore how to increase program enrollments and capacity. Expanding the provider network and expanding outreach to untapped sources of talent within their geographic areas should be considered after completing this analysis. When performing supply-demand analysis, employer collaboratives should ask the following questions in this order:

1   **Improving the Hiring and Retention Rates of Completers:** Can projected demand be realistically met by improving the number of completers that are hired and retained? If not, then:

2   **Improving the Completion Rate of Programs:** Can the projected demand be realistically met by (1) improving the hiring and retention rates of completers, and (2) increasing the number of completers? If not, then:

3   **Expanding Program Enrollment:** Can the projected demand be met by (1) improving the hiring and retention rates of completers, (2) increasing the number of completers, and (3) increasing the number of learners enrolling in the program? If not, then:

4   **Increasing Program Capacity:** Can the projected demand be met by (1) improving the hiring and retention rates of completers, (2) increasing the number of completers, (3) increasing the number learners enrolling in the program, and (4) expanding the program's enrollment capacity?

If projected demand cannot be realistically met by some combination of these four strategies, the employer collaboratives should consider how to expand the provider network in their talent pipeline.

Employer collaboratives focusing on priority populations, including opportunity populations, could use this supply-demand analysis to do the same analysis for one or more populations. For example, a healthcare collaborative seeks to increase the racial and ethnic diversity of registered nurses. It also seeks to expand opportunities for veterans and the economically disadvantaged. It could use the same set of questions previously mentioned but focus on these priority populations. See Table 4.11: Priority Population Supply for 90 Projected Openings for Registered Nurses for an example of how this information would be helpful to a collaborative.

Table 4.11: Priority Population Supply for 90 Projected Openings for Registered Nurses

Populations	Program Completers Hired and Retained (over the past two years)	Program Completers (over the past two years)	Program Enrollees (over the past two years)
Total*	80 (100.0%)	100 (100.0%)	130 (100.0%)
White, Non-Hispanic	58 (72.5%)	60 (60.0%)	75 (57.7%)
Black or African American	13 (16.3%)	22 (22.0%)	30 (23.1%)
Veterans	11 (13.8%)	16 (16.0%)	18 (13.8%)
Economically Disadvantaged	10 (12.6%)	15 (15.0%)	25 (19.2%)

*Given there is potential duplication in the subgroups listed in Table 4.11, the sum of the subgroups will not match the total number (i.e., veterans can also be white, Black or African American, or economically disadvantaged). In addition, not all learners are necessarily represented in the table (e.g., Hispanic or Latinx, Asian).

In advanced supply-demand analysis, as shown in Table 4.12, employer collaboratives would incorporate the results from advanced talent flow analysis to show the leakage of program completers inside and outside the region (or a chosen geographic area). In advanced supply-demand analysis, we learn whether completers are being hired by employers in the same industries in the region, employers in different industries in the region, or employers outside the region.

This advanced approach provides valuable information on where to start in reducing leakage through talent pipeline strategies. For example, in Table 4.12, a healthcare collaborative could explore which other regional employers that hire registered nurses should be invited to join the collaborative. It could also explore why registered nurses are being employed outside the region and the implications for building better talent pipelines. The IT collaborative would not require more advanced analysis because it is effectively capturing the program completers from its provider partners.

Table 4.12: Advanced Approach to TPM Supply-Demand Analysis (Building on Advanced Talent Flow Analysis)

Critical/ Feeder Jobs	Projected Job Openings (for two years)	Program Completers Hired and Retained (over the past two years)		Program Completers (over the past two years)	Program Enrollees (over the past two years)	Program Capacity (over the past two years)
		Hired by Collaborative and Retained	**Leakage/Hired by Others**			
Registered Nurses	90	80	20		130	130
			in Same Industries in Region: 5			
			in Other Industries in Region: 10			
			Outside Region or Unknown: 5			
IT Network Administrators	35	15	15		25	35

Exercise 4

Conducting Supply-Demand Analysis

This exercise is intended to demonstrate how to use data gathered during talent flow analysis to conduct a supply-demand analysis for building a talent pipeline.

1   Using the data found in Table 4.10, answer the four supply-demand analysis questions for Registered Nurses and IT Network Administrators. After answering the questions, identify strategies for how existing talent providers could meet the employer collaborative's projected demand.

2   Based on a comparison of the demographic data found in Table 4.11, and supply-demand data found in table 4.10, could the employers double the number of Black or African American hires, veteran hires, and economically disadvantaged hires using the program from which they currently source registered nurses? If so, explain how. If not, explain why not.

Table 4.10: Basic Approach to TPM Supply-Demand Analysis Example

Critical/ Feeder Jobs	Projected Job Openings (for two years)	Program Completers Hired and Retained (over the past two years)	Program Completers (over the past two years)	Program Enrollees (over the past two years)	Program Capacity (over the past two years)
Registered Nurses	90	80	100	130	130
IT Network Administrators	35	15	15	25	35

Table 4.11: Priority Population Supply for 90 Projected Openings for Registered Nurses

Populations	Program Completers Hired and Retained (over the past two years)	Program Completers (over the past two years)	Program Enrollees (over the past two years)
Total*	80 (100.0%)	100 (100.0%)	130 (100.0%)
White, Non-Hispanic	58 (72.5%)	60 (60.0%)	75 (57.7%)
Black or African American	13 (16.3%)	22 (22.0%)	30 (23.1%)
Veterans	11 (13.8%)	16 (16.0%)	18 (13.8%)
Economically Disadvantaged	10 (12.6%)	15 (15.0%)	25 (19.2%)

Unit 4.6

Conducting Talent Pool Analysis

Employer collaboratives may benefit from knowing what the total available supply of talent is in a given geographic area as well as whether their current workforce and talent pipeline is representative of their region's larger working-age population. Data on the working-age population and their characteristics can be acquired through state economic development and workforce agencies. These data can include labor force size and participation rates, underemployment rates, education levels, industry and occupational employment distribution, and demographic characteristics. If working-age population data are not available, this analysis would use total population numbers for demographic groups.

In TPM, employers are encouraged to use these data resources to provide useful contextual and benchmarking information for their major talent challenges, including hiring and upskilling as well as DEI goals and initiatives. Talent pool analysis is designed to do just that.

For example, employer collaboratives could work with their partners to compile and analyze data on:

- Size and industry and occupational distribution of the current workforce, including those employed in critical and feeder jobs within and outside the collaborative. This is especially relevant for analyzing external feeder jobs from other industries that provide the first jobs for workers entering or reentering the workforce.

- Labor force participation levels and rates for the working-age population, including the number and percentage of people currently unemployed, underemployed, and not participating in the workforce. This provides critical information on potentially untapped talent that could be recruited into critical and feeder jobs, especially feeder jobs that are often the first jobs when entering or reentering the workforce.

- Demographics (e.g., age, gender, race/ethnicity) and related population characteristics (e.g., people with disabilities) as well as the education levels of the working-age population, including an analysis of the size and distribution of populations that are prioritized by employer collaboratives, such as veterans and opportunity populations.

Priority Population Reach Analysis

For employer collaboratives that are prioritizing specific populations, including opportunity populations that may be tied to employer DEI initiatives, TPM provides guidance on how to conduct a priority population reach analysis that builds on results from talent flow analysis.

Priority population reach analysis provides critical information on the size and distribution of these populations within the existing or potential provider network compared to the working-age population within a chosen geographic area. At the basic level, talent pool analysis focuses on analyzing how effective the current and potential provider network is in reaching priority populations, including opportunity populations that may be linked

to employer DEI goals. Talent pool analysis reveals priority populations' enrollment in and completion of education and training programs for critical jobs compared to the size and distribution of these populations in the overall working-age population. As with back mapping and talent flow analysis, there is a basic and more advanced way to conduct this reach analysis.

- **Basic Population Reach Analysis:** In basic reach analysis, employer collaboratives are encouraged to expand their supply-demand analysis of priority populations to include (1) comparable information about their current employees in critical jobs, and (2) comparable information about the populations served by their providers. This basic analysis provides useful baseline information on where employers are in hiring and retaining workers from priority populations. It also addresses the success of providers in enrolling these priority populations across all programs they offer. This analysis provides the information needed to determine what might be achieved by improving outreach and recruitment of students who are already taking courses and enrolling in other related programs. This basic analysis can be done through data collected directly by employers and their provider networks without using additional government data sources.

  As shown in Table 4.13, this basic reach analysis would build on the TPM supply-demand analysis framework by adding:

  - **Employed Workers:** The number of workers employed by employer collaborative members over the most recent baseline time period consistent with the time periods for projections, hiring and retention, completion, and enrollment in the supply-demand analysis (e.g., two years)
  - **Provider Enrollees:** The number of learners who are taking courses or who are enrolled in all programs offered by providers over the most recent baseline time period consistent with length of the projection time period (e.g., two years)

  This basic analysis should first be done at the aggregate level for all programs and all providers in the provider network (as shown in Table 4.13) and then be done for each program and provider as needed to explore differences between programs and providers. This basic level of analysis can be used to address the following questions:

  - **Baseline Reach and Recent Hiring and Retention:** Where are we in employing workers from our priority populations? How do they compare with hiring and retention in the most recent time period? Are we moving in the right direction?
  - **Increasing Provider Outreach:** Can the projected demand be met by improving outreach and recruitment of learners currently taking courses and enrolling in programs offered by current providers? Do we need to explore expanding our provider network?

- **Advanced Priority Population Reach Analysis:** In advanced reach analysis, there is one more step. Employer collaboratives are encouraged to work with government agencies and other partners to compare the results of the basic analysis to information on the size and distribution of priority populations in the working-age population of a chosen geographic area. This advanced analysis provides critical information for setting goals and strategies for expanded outreach to priority populations by employers and providers and determines the need to seek out new providers that can better reach these populations. As shown in Table 4.13, this advanced analysis uses one more piece of information: working-age population.

This advanced level of analysis can be used to address the following question:

- **Setting Priority Population Reach Goals:** Where are we in employing workers from our priority populations relative to their representation within the working-age population? What goals should we set—consistent with the employer collaborative's identified talent challenges—for increasing the number and percentage of workers from priority populations who are hired and retained and who are enrolled and complete programs?

Table 4.13: Priority Population Reach Analysis for All Nursing Programs and Providers

Populations	Nurses Currently Employed by Collaborative Members	Program Completers Hired and Retained by Collaborative Members (over the past two years)	Program Completers (over the past two years)	Program Enrollees (over the past two years)	Provider Enrollees (over the past two years)	Current Working-Age Population
Total*	820 (100.0%)	80 (100.0%)	100 (100.0%)	130 (100.0%)	6,000 (100.0%)	168,000 (100.0%)
White, Non-Hispanic	650 (79.3%)	58 (72.5%)	60 (60.0%)	75 (57.7%)	4,000 (66.7%)	105,000 (62.5%)
Black or African American	55 (6.7%)	13 (16.3%)	22 (22.0%)	30 (23.1%)	1,250 (20.8%)	42,500 (25.3%)
Veterans	50 (6.1%)	11 (13.8%)	16 (16.0%)	18 (13.8%)	900 (15.0%)	10,500 (6.3%)
Economically Disadvantaged	N/A**	10 (12.5%)	15 (15.0%)	25 (19.2%)	1,100 (18.3%)	42,500 (25.3%)

*Given there is potential duplication in the subgroups listed in Table 4.13, the sum of the subgroups will not match the total number (i.e., veterans can also be white, Black or African American, or economically disadvantaged).

**Employers will likely not have these data.

Exercise 5

Conducting Talent Pool Analysis

This exercise is intended to demonstrate how to use data gathered during the basic and advanced priority population reach analysis to explore goals and strategies in building talent pipelines.

Using the data found in Table 4.13, answer the following two questions:

1 **Baseline Reach and Recent Hiring and Retention:** How successful is the healthcare employer collaborative now in employing workers from their priority populations? If they continued current hiring practices, would they become a more diverse employer or less?

2 **Advanced Reach Analysis:** Is the employer's Black or African American workforce reflective of the broader community? If so, explain. If not, what actions might you recommend to the employer collaborative?

Table 4.13: Priority Population Reach Analysis for All Nursing Programs and Providers

Populations	Nurses Currently Employed by Collaborative Members	Program Completers Hired and Retained by Collaborative Members (over the past two years)	Program Completers (over the past two years)	Program Enrollees (over the past two years)	Provider Enrollees (over the past two years)	Current Working-Age Population
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*Given there is potential duplication in the subgroups listed in Table 4.13, the sum of the subgroups will not match the total number (i.e., veterans can also be white, Black or African American, or economically disadvantaged).

**Employers will likely not have these data.

Ready for Next Steps?

Before you move to the next strategy, make sure you have achieved the learning objectives necessary to move forward. Ensure that when you go back to your community, you will be able to execute the following activities:

- Explain why talent supply analysis is integral to managing a talent supply chain.

- Identify Tier 1 and Tier 2 providers for external talent pipelines and their relationship to one another.

- Identify internal jobs that can be retrained for new roles as well as feeder jobs that can be upskilled for career advancement.

- Conduct back mapping with your collaborative members.

- Request and use data from data partners for talent flow analysis, including capacity analysis.

- Work with government agencies and providers to plan and conduct basic or advanced supply-demand analysis.

- Work with government agencies and other partners to plan and conduct a talent pool analysis for the highest-priority talent challenges. Utilize the best education, workforce, and labor market information available.

- Use the Strategy 4 Action Plan at the beginning of the chapter to determine your next steps and track your progress.

- For those using the TPM web tool, develop reports and generate visualization tools depicting the flow of talent from providers and other partners to your collaborative members.