Assessment of National Industry Intermediaries' and National Equity Partners' Efforts to Expand Apprenticeship Opportunities

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Abstract

In September 2016, to expand apprenticeship opportunities across the United States, the Office of Apprenticeship in the U.S. Department of Labor awarded $20.4 million over four years in competitive one-year, renewable contracts to 10 national industry intermediaries and 4 national equity partners. The main purpose of these contracts was to complement OA's work in expanding the availability of and access to registered apprenticeships. The industry intermediaries contributed to that goal by developing new occupational frameworks and apprenticeship programs in particular industry sectors. The equity partners supported apprenticeship programs in their efforts to become more diverse and inclusive, and increase the participation of underrepresented populations, including women, people of color, and people with disabilities. Based primarily on interviews with these organizations, this paper assesses the strategies the industry intermediaries and equity partners implemented, the challenges they have experienced, and their successes and setbacks in meeting these challenges.

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In September 2016, to expand apprenticeship opportunities across the United States, the Office of Apprenticeship (OA) in the U.S. Department of Labor (DOL) awarded $20.4 million over four years in competitive one-year, renewable contracts to 10 national industry intermediaries and 4 national equity partners (Box ES.1). The main purpose of those contracts was to complement OA's work in reaching out to employers to expand apprenticeship.[1] The industry intermediaries have contributed to that goal by developing new occupational frameworks and apprenticeship programs in particular industry sectors, and the equity partners have supported apprenticeship programs in their efforts to become more diverse and inclusive. Based primarily on interviews with those organizations, this paper assesses the strategies the industry intermediaries and equity partners implemented, the challenges they have experienced, and their successes and setbacks in meeting these challenges.

Industry intermediaries

The industry intermediary contracts provided funding for organizations to expand the scale of apprenticeship programs by further developing sectors outside of construction and increasing the number of pre-apprenticeships in construction. The industry intermediary contractors operated in multiple states and developed national standards and programs that any employer could adopt. Most of the industry intermediaries significantly exceeded their targets for the number of apprentices registered and new apprenticeship programs developed. Their success suggests the strength of an intermediary model for expanding apprenticeships. Industry intermediaries have used several approaches to expand apprenticeship in their sectors:

- Providing pre-apprenticeship programs that improve access to apprenticeship for underrepresented populations;
- Engaging employers with the help of partner organizations, such as community colleges and industry associations, and through conferences and accelerator

Box ES.1. Who were the national industry intermediary and equity contractors?

National industry intermediaries:

- AFL-CIO Working for America Institute
- AHIMA Foundation*
- FASTPORT, Inc.
- Healthcare Career Advancement Program, Inc.
- Jobs for the Future, Inc.
- National Institute for Metalworking Skills, Inc.*
- National Restaurant Association Educational Foundation
- North America's Building Trades Unions
- South Central Louisiana Technical College/TransPORT
- Washington Technology Industry Association/Apprenti

National equity partners:

- Chicago Women in Trades
- Jobs for the Future, Inc.*
- National Urban League
- North Carolina Agricultural and Technical State University*

* Contract not renewed after first year.

[1] US DOL currently supports several apprenticeship expansion efforts that support training that combines paid, structured on-the-job learning with related educational instruction. This report refers specifically to apprenticeship programs registered with the US DOL or a state apprenticeship agency.

events, and one-on-one engagement with subject matter experts; and

- Developing new occupational frameworks through careful collaboration between employers and subject matter experts.

Equity partners

The equity partner contracts offered new ways to widen apprenticeship opportunities for underrepresented populations, specifically women, people of color, and people with disabilities. Equity partners also have used several approaches to make apprenticeship more inclusive:

- Partnering with apprenticeship programs to promote equity by directly changing recruitment and selection practices and partnering with industry associations and the public workforce system to help make technical assistance broadly available to employers;
- Engaging employers to provide technical assistance and supportive services, such as transportation, child care, and emergency assistance payments, and build pipelines to recruit apprentices from underrepresented populations; and
- Developing case studies and other resources to help apprenticeship programs learn from the successes of other organizations and understand their equal employment opportunity obligations.

By the end of the third year of the four-year contract period, the industry intermediaries reported contributing significantly to the number of new apprentices in the United States and to widening the occupational range of apprenticeships by developing new occupational standards. At the same time, the equity partners reported connecting employers and sponsors with organizations and resources to widen access to apprenticeships in order to have more diversity and inclusiveness for underrepresented populations. Scaling these efforts to reach a significant share of employers remains a major challenge, but the progress so far appears positive.

Introduction

In September 2016, to expand apprenticeship opportunities across the United States, the Office of Apprenticeship (OA) in the U.S. Department of Labor (DOL), Employment and Training Administration (ETA) awarded $20.4 million over four years in one-year, renewable contracts to 10 national industry intermediaries and 4 national equity partners (Box 1).[2] Ten of those original 14 contracts were renewed after the first year. This paper discusses whether the organizations were meeting the goals of their contracts as of the last year of their contracts and reports on lessons from their activities.

The purpose of the contracts was to complement OA's work in reaching out to employers to expand apprenticeship. Informing companies of the value of apprenticeship and helping them organize their programs is central to an apprenticeship expansion strategy. However, before 2016, OA's outreach to employers was limited because of scare resources. Most states have only a few field personnel and apprenticeship training representatives to promote and organize apprenticeships for employers.

The most important difference between the equity partners and industry intermediaries was that equity partners were charged with developing partnerships that would promote apprenticeship, whereas industry intermediaries were expected to register new apprenticeship programs and apprentices. However, the equity partners also focused on one or more industries and sought to promote diversity and inclusion by marketing apprenticeship more broadly. The industry intermediary contracts provided funding for organizations to expand the scale of apprenticeship programs by reaching into sectors outside of construction and increasing the number of pre-apprenticeships in construction. The main goals of the industry contracts were as follows:

Box 1. Who were the national industry intermediary and equity contractors?

National industry intermediaries:

- AFL-CIO Working for America Institute
- AHIMA Foundation*
- FASTPORT, Inc.
- Healthcare Career Advancement Program, Inc.
- Jobs for the Future, Inc.
- National Institute for Metalworking Skills, Inc.*
- National Restaurant Association Educational Foundation
- North America's Building Trades Unions
- South Central Louisiana Technical College/TransPORT
- Washington Technology Industry Association/Apprenti

National equity partners:

- Chicago Women in Trades
- Jobs for the Future, Inc.*
- National Urban League
- North Carolina Agricultural and Technical State University*

* Contract not renewed after first year.

[2] All contractors worked across multiple states. The contracts of two industry intermediaries (AHIMA Foundation and the National Institute for Metalworking Skills, Inc.) and two equity partners (Jobs for the Future, Inc., and North Carolina Agricultural and Technical State University) were not renewed after the first contract year.

- Supporting the growth of pre-apprenticeship programs in construction and expanding the scale of apprenticeship in the health care, transportation and logistics, energy, manufacturing, and information and communications technology industries;
- Helping employers from different industry sectors expand their apprenticeship programs, start new programs, and work together to create a pipeline of skilled workers; and
- Registering at least 450 apprentices in each year of their contracts and creating or substantially revising two occupational frameworks.

Ideally, as intermediaries better understand how to develop apprenticeships for new industries and occupations, over time, they can stimulate more apprenticeships directly, as well as indirectly through diffusion across industries.

The equity partner contracts offered new ways to widen apprenticeship opportunities for underrepresented populations. Equity partners were not required to meet targets for new apprentices, but their main goals as specified in their contracts were as follows:

- Identifying, developing, and disseminating tools and strategies that increase access, entry, and retention in registered apprenticeships for underrepresented populations; and
- Increasing the diversity of workers entering and successfully completing registered apprenticeship programs by developing (or improving), implementing, and increasing the use of plans and practices for diversity and inclusion.

The information in this paper was collected through interviews with industry intermediaries and equity partners in 2017 and through follow-up interviews in 2020 with partners whose contracts had been renewed. In the fall of 2017, the study team, which included Mathematica, the Urban Institute, and Social Policy Research Associates, conducted interviews with 9 of the 10 original industry intermediaries and the 4 equity partners (see Box 2 for more about the study). In January and February of 2020, researchers from the Urban Institute conducted follow-up interviews with 9 of the 10 continued industry intermediary and equity partners to understand the progress they had made since 2017.[3] In these interviews, the study team sought to address the following research questions: (1) What were the goals, approach, and activities of the contracts to promote apprenticeship expansion and diversity? (2) How did the intermediaries promote employer engagement? (3) What factors were perceived to influence contractors' efforts to drive apprenticeship expansion and diversity? and (4) What challenges and promising practices emerged?

The remainder of this paper assesses the strategies the industry intermediaries and equity partners implemented, the challenges they have experienced, and their successes and setbacks in meeting these

Box 2. Overview of the State Apprenticeship Expansion Grants Research Study

In 2017, ETA contracted with Mathematica and its partners to conduct a study of registered expansion and diversification efforts. This report presents an analysis of intermediary contractors' work and is one of three study reports. Two additional reports present findings from (1) an analysis of the expansion efforts of those states that received State Apprenticeship Expansion grants in 2017 (Sattar et al. forthcoming) and (2) an analysis of data from a survey documenting states' apprenticeship efforts (Rosenberg and Dunn forthcoming).

[3] The tenth intermediary was not responsive to interview requests during the data collection period.

challenges. Overall, although some contractors were new to apprenticeship, most nevertheless achieved a good deal, both in stimulating new apprenticeships and in developing new partnerships. This paper first discusses the industry intermediaries, including their success at meeting their targets, their pre-apprenticeship program development, their strategies for engaging employers, their development of occupational frameworks, and their challenges and lessons. Next, the paper discusses the equity partners, including their development of partnerships, their strategies for engaging employers, and their development of case studies to promote diversity and inclusion. Partnerships between industry intermediaries and equity partners, as well as partnerships between those contractors and states, are discussed next. The paper concludes with lessons for future efforts to expand apprenticeship and a brief discussion. Key terms used in this paper are described in Box 3.

Box 3. Definition of key terms

Definitions of key terms related to the apprenticeship system used in this report are described below.

Intermediaries. Although there is no single model or definition of an intermediary, intermediaries are typically employers, nonprofit organizations, colleges, or chambers of commerce. As intermediaries, they convene and connect industry, education, and community-based partners and facilitate collaboration, boosting the capacity and expertise of these partners.

Related technical instruction: All registered apprenticeship programs must include at least 144 hours of related technical instruction, or classroom-based instruction relevant to the occupational skills training that occurs during the apprenticeship. Related technical instruction can be provided by a traditional education and training institution, although it may also be provided by an employer or other entity.

Sponsors. Sponsors are responsible for the overall operation of apprenticeship programs. They may establish apprenticeship committees and register programs with the state or federal apprenticeship agency. Sponsors can be individual employers, consortia, industry associations, or other intermediary organizations.

Industry intermediaries

Meeting apprenticeship targets

Nearly all industry intermediaries have been successful in reaching the target numbers of apprenticeships specified in their contracts and contacted many employers. Table 1 presents key information on the 10 industry intermediary contracts, including their industry of focus, the number of new apprentices registered, the number of apprenticeship programs developed, and the number of apprentices employers committed to hiring. Although nearly all industry intermediaries were successful in meeting their targets in each contract year, two particularly successful intermediaries, FASTPORT, Inc., and Jobs for the Future (JFF), Inc., are worth highlighting.

At the time of the 2017 interview, FASTPORT had generated by far the largest number of apprenticeships: 2,024. By the 2020 follow-up interview, the cumulative number had jumped more than sixfold, to more than 12,700. FASTPORT focused on occupations in transportation and logistics—two areas that have considerable skill shortages and are particularly suitable for apprenticeships. Licensing for trucking jobs, for example, already requires both classroom and hands-on training, and the industry is developing standards for that training. FASTPORT indicated that it takes about a year for workers to master trucking skills, which is a natural apprenticeship period. It focused its registrations on Heavy Truck Driver, Diesel Mechanic, and Automotive Mechanic (Truck and Body). Other FASTPORT

occupational programs include Industrial Truck, Transportation Management Coordinator, Logistics Engineer, Delivery Installation Specialist, and Driver Manager.

Table 1. Apprenticeship expansion by industry intermediary contractors

Industry intermediary	Main industry	Contractors' description of progress toward contract goals
AFL-CIO Working for America Institute	Advanced manufacturing and hospitality	AFL-CIO Working for America Institute reported meeting its first-year contract target of 450 apprentices and set up 27 new apprenticeship programs.
AHIMA Foundation*	Health care	AHIMA reported meeting its first-year contract target of 502 apprentices and developed 16 new programs.
FASTPORT, Inc.	Transportation	FASTPORT reported steady growth in registered apprenticeships in each year of the contract, including more than 2,200 apprentices in Year 1, more than 3,600 in Year 2, and more than 4,200 in Year 3.
Healthcare Career Advancement Program (H-CAP), Inc.	Health care	H-CAP reported registering between 500 and 600 apprentices in each year of the contract and has had more than 50 employers participate in one of its national apprenticeship programs.
Jobs for the Future (JFF), Inc.	Advanced manufacturing	JFF reported registering about 700 apprentices in the first contract year and about 1,000 apprentices in the second and the third contract year, exceeding its targets in each year.
National Institute for Metalworking Skills, Inc. (NIMS)*	Advanced manufacturing	NIMS reported more than 900 apprentice commitments from employers at the time of the 2017 interview.
National Restaurant Association Educational Foundation (NRAEF)	Restaurants and hospitality	NRAEF reported registering approximately 2,000 apprentices during the first three years of the contract. NRAEF has generated 46 new apprenticeship programs in the lodging industry and 27 new programs in the restaurant industry.
North America's Building Trades Unions (NABTU)	Construction	NABTU reported registering approximately 600 apprentices in each year of the contract. Those apprentices graduated from NABTU's pre-apprenticeship programs, which grew in each year of the contract, from 1,100 pre-apprentices in Year 1, to approximately 1,900 pre-apprentices in Year 2, to 2,600 pre-apprentices in Year 3.
South Central Louisiana Technical College (SCLTC)/TransPORT	Marine manufacturing and technology	TransPORT reported registering about 2,300 apprentices during the first three years of the contract, or more than 750 apprentices each year.
Washington Technology Industry Association (WTIA)/Apprenti	Information and communications technology	Apprenti reported registering approximately 100 apprentices in its 2017 interview, well short of its first-year target of 600. Apprenti indicated that this was due in part to the its focus on generating new occupational frameworks and standards in the first year of the contract. As of the 2020 interview, Apprenti reported 14 occupational standards approved, and at the start of the fourth contract year, it had almost 1,000 apprentices registered.

Source: Interviews with industry intermediaries, 2017 and 2020.

* Contract not renewed after first year.

FASTPORT found that apprenticeship was rare for transportation and logistics occupations at the beginning of its contract, even though the need for qualified workers in these increasingly technical occupations has expanded sharply. After identifying skill shortages in a particular occupation, FASTPORT asked employers and industry associations (such as Hiring Our Heroes and the American Trucking Association) how they can work together to address the shortages. Next, it identified a related technical instruction provider and built the apprenticeship program. FASTPORT reported that preparing the apprenticeship program and related instruction helps to attract employers, who are more likely to sign on to an apprenticeship program that already has been developed fully.

JFF also was successful in attracting companies as sponsors (37 in the first year) and generating apprenticeships (about 700 in the first year and about 1,000 in both the second and the third years). At the time of the 2020 interview, 40 to 50 employers had employed JFF's apprentices. JFF's contract focused on developing manufacturing and telecommunications apprenticeships in the following occupations: Industrial Manufacturing Technician, Industrial Maintenance Mechanic, Computer Numerically Controlled Machine Operator, Telecommunications Tower Technician, Wireless Technician, Telecommunications Tower Antenna and Line Lead, and Line Foreman. At the time of the first interview, JFF had contacted more than 400 manufacturing companies, met with hundreds of them to generate interest in apprenticeship, and started widening its scope to include the telecommunications industry. JFF's strategy throughout the contract was to register programs sponsored by intermediaries for a group of small manufacturing employers; encourage those employers to hire apprentices; and encourage rotating apprentices across employers. Rotating apprentices can broaden their experiences and increase their familiarity with other employers in the industry. Rotation also helps employers to share the costs of apprenticeship.[4]

Other intermediaries focused on industries with few apprenticeships, including restaurants and hospitality, health care, and information technology (IT). Almost all of the intermediaries that focused on those industries met their target number of 450 apprentices per year. An exception was Apprenti, the industry intermediary program of the Washington Technology Industry Association. At the time of its 2017 interview, Apprenti had placed about 100 of its annual target of 450 apprentices and had commitments or likely commitments for another 146 apprenticeships. Instead of focusing on registering its target number of apprentices, Apprenti focused on developing occupational frameworks for several companies and developed 11 occupational frameworks in the IT field. By the beginning of the fourth contract year, Apprenti had registered almost 1,000 apprentices, indicating progress since 2017 but still falling short of its cumulative target of 1,350 apprentices by the end of the third contract year and 1,800 for the full four years of the contract.

Pre-apprenticeship programs

Pre-apprenticeship programs provide basic occupational and job skills to individuals who are interested in apprenticeship programs but may not be adequately prepared for apprenticeship training. Pre-apprenticeship programs aim to expand access to apprenticeship by giving participants a baseline level of occupational skills needed to become apprentices. Pre-apprenticeships are typically unregistered, but strong programs channel successful participants into a registered apprenticeship program and, in some

[4] JFF's strategy of apprentice rotation across employers is a traditional practice in many unionized group programs. It occurs in some, but not all, group apprenticeship programs.

cases, even guarantee interviews with partner apprenticeship programs. Pre-apprenticeship training can be provided in a variety of settings, including high schools, colleges, and training centers.

Although several intermediaries supported pre-apprenticeship programs, only North America's Building Trades Unions (NABTU) focused on developing on pre-apprenticeship programs as the main activity of the contract. NABTU is also the only intermediary that focused on construction, the industry that most actively uses apprenticeship.[5] Because apprenticeship is already widespread in construction, the innovative aspect of NABTU's contract was to help young people who are not ready for construction apprenticeships participate in online pre-apprenticeship programs, which typically last about three weeks. Different trades programs donated and each component of the NABTU curriculum and adapted it to meet the requirements of all building trades. For example, the bricklayer's union donated its basic math curriculum, and the painter's union was revising the pre-apprenticeship's blueprint reading curriculum.

NABTU used pre-apprenticeships to diversify apprenticeships in construction by providing access to apprenticeship for populations that are typically underrepresented, such as women and people of color. A staff member at NABTU noted that in that sense, the intermediary's work mirrored that of the equity partners.

The pre-apprenticeship program grew rapidly over the course of NABTU's contract. In the first year, NABTU supported more than 1,000 pre-apprentices, which grew to a third-year total of more than 2,500 pre-apprentices. NABTU reported that approximately 50 percent of participants completed the program and entered a registered apprenticeship program. (NABTU calibrated the number of pre-apprentices in the program to ensure that there would be enough construction apprenticeships for all graduates.) NABTU staff indicated that apprentices were concentrated in "about half a dozen crafts," which accounted for the large majority of the pre-apprentice placements in apprenticeships. Pre-apprentices were counted toward NABTU's contract targets only after they were placed in registered apprenticeships. NABTU staff reported in their follow-up interview that it was often difficult to get information from pre-apprenticeship programs on participants' transitions into registered apprenticeships because the programs were not a part of the registered apprenticeship system and were often underfunded and understaffed.

Pre-apprenticeship was not as central to other industry intermediaries, but similar models were frequently an important recruitment source for apprentices. For example, the National Restaurant Association Educational Foundation (NRAEF) operates a high school–based career and technical education program, called ProStart, in which students can learn about the restaurant and hospitality industry and even earn related technical instruction credit hours. ProStart does not typically include on-the-job training and is therefore not a youth apprenticeship, but it serves the same function for NRAEF as a pre-apprenticeship program.

Pre-apprenticeship proved to be an important strategy for broadening access to registered apprenticeship, but since these programs operate outside the registered apprenticeship system they were often underfunded and difficult to monitor. Future apprenticeship expansion initiatives should focus on building more structured pre-apprenticeship programs with stronger connections to the registered apprenticeship system.

[5] For apprenticeship statistics by occupation, see https://doleta.gov/oa/data_statistics.cfm. Electricians, carpenters, plumbers, and craft laborers are considered building and construction occupations. In practice, some of apprentices in those trades, particularly electricians, may be employed in other industries, such as utilities or manufacturing.

Steps to engage employers in apprenticeship

Two main challenges in creating apprenticeships in nontraditional fields are (1) developing occupational frameworks that employers consider appropriate and (2) convincing employers to start apprenticeship programs and hire apprentices (Colborn and Jenkins, 2015; Lerman, Loprest, and Kuehn, 2019). In the first contract year, the industry intermediaries conducted intensive outreach to employers through many channels, thus dealing with both challenges at the same time.

As they reported in the 2017 interviews and confirmed in the follow-up interviews, most intermediaries started by convening events, hosting webinars, and giving presentations at conferences to offer information on the value of apprenticeships and help organize apprenticeship programs. At those events, intermediaries engaged industry associations, groups of employers, community colleges, and other potential sponsors. Nearly all intermediaries developed outreach materials to distribute to potential sponsors. Some examples of their initial outreach that respondents highlighted as particularly useful included the following:

- AHIMA conducted outreach through national conferences, health care apprenticeship accelerator meetings,[6] and its network of organizations dealing with health information management.
- FASTPORT held 350 online and in-person sessions with employers, attended several industry conferences, and contacted industry associations to reach employers and unions in the transportation, distribution, and logistics industries. The associations also provided insight into employers' needs; for example, when engaging with a warehousing association, FASTPORT discovered the need for refrigeration technicians.
- The Healthcare Career Advancement Program (H-CAP), Inc., used its board to identify employer and organizational leads and also contacted national and state organizations. In addition, H-CAP conducted webinars and fielded referrals from DOL and state workforce agencies.
- JFF contacted several industry groups, including Business Leaders United, the Manufacturing Extension Partnership, Makerspace groups, and the Manufacturers Association of Central New York to engage employers who might offer apprenticeships in manufacturing. Other JFF projects, including the American Apprenticeship Initiative grant program, served as a source of referrals of employers who would be better served by JFF under the industry intermediary contract.[7]
- NRAEF made group presentations at accelerator meetings and to American Hotel and Lodging Association committees and councils and held one-on-one meetings with large employers such as Hilton, Marriot, and Days Inn.
- TransPORT, South Central Louisiana Technical College's program, marketed to major port employers and trade associations and at accelerator events. In interviews, TransPORT staff stated that their initial approach was to engage port agencies and authorities. However, the ports were typically slow to register apprenticeship programs on their own. TransPORT learned over time that the employer contacts that they developed working with the port authorities were more willing to register apprenticeship programs than the ports themselves.

[6] Apprenticeship accelerators are events sponsored by DOL to expand apprenticeship.
[7] JFF worked with DOL to ensure that all apprentices and apprenticeship programs were appropriately counted toward different JFF contracts and grants.

As the next step, intermediaries contacted individual employers through calls and in-person meetings to identify those willing to become sponsors. That process often involved partners willing to refer employers that might be interested in building an apprenticeship program. The following are examples of some of those contacts and the roles that the intermediaries played:

- Before making direct calls and undertaking in-person interviews, FASTPORT conducted research and analyzed which companies were likely candidates for apprenticeship. It also worked through industry associations to develop contacts and build trust, which was considered a more reliable approach than working through community colleges or directly approaching employers. In the first year of its contract, FASTPORT reported making 1,945 sales calls to employers.
- At the start of the contract, JFF hired three subject matter experts (SMEs) with experience in selling and organizing apprenticeships in person with employers. For example, one SME worked with the Wireless Industry Association to expand apprenticeships in the industry from two to six occupations and played a major role in recruiting companies to register more than 400 apprentices in the first contract year. Through its contract, JFF also provided incentive funding to employers of up to $1,200 per apprentice or $40,000 in total per year. These payments were primarily intended to incentivize employers, but staff reported that the payments were also critical for engaging apprentices with child care needs, disabilities, or other barriers that could be alleviated with financial support. Employers submitted a work plan detailing how they would use the money. Incentives were typically used to pay for training or supportive services, but not wages.
- NABTU relied on strong existing relationships with building contractors who understood the value of apprenticeship but might not be using pre-apprenticeships as a talent pipeline. The most common reason for pushback was that the apprenticeship programs already had enough applicants. NABTU would then make the case that pre-apprenticeships could diversify the industry's workforce and improve access to apprenticeships. NABTU also provided financial incentives to support new pre-apprenticeship programs in their first year.
- The National Institute for Metalworking Skills (NIMS) worked with five industry associations and its own network to reach individual employers. The industry associations directed interested employers to an employer self-assessment on the NIMS website, which collects information on occupational training needs. NIMS staff reported that most of the work of developing a new occupational framework is completed through the self-assessment. After completing the self-assessment, employers met with SMEs to complete the program development and registration process.
- As NRAEF manages national standards for its Restaurant Manager and Lodging Manager programs, it helped its employers to design programs that match with 80 percent of the national standard competencies to guarantee a smooth and timely registration process. Signing employers on to national standards rather than developing new programs helped streamline employer recruitment. NRAEF also offered incentive funding to employers to support related technical instruction, supportive services, and train-the-trainer efforts. It provided a smaller per-apprentice incentive amount to larger apprenticeship programs than to smaller ones to conserve contract funds and to assist smaller new programs that have to distribute start-up and overhead costs over a smaller number of apprentices.
- TransPORT worked with State and Federal Directors of Apprenticeship and community colleges to gain knowledge of and access to potential employers. TransPORT staff felt that this approach increased their credibility with employers and made it easier to connect with staff in charge of making decisions. TransPORT offered small financial incentives to function as seed money for new programs

to support apprenticeship standard and program development, although it did not provide ongoing financial support.

- Apprenti's main source for employer referrals was the membership of the Washington Technology Industry Association; it also attracted some referrals through word of mouth.
- After registration, some industry intermediaries found ways to ease the reporting burden on employers. NRAEF worked with an external database contractor to simplify and streamline the reporting process so that employers had to report only to one system each quarter, rather than the three different systems to which they were originally reporting. FASTPORT tried to streamline data entry for employers by managing that task for 95 percent of sponsors.

Some intermediaries worked with regional groups to contact employers and other strategic partners in different geographic areas. Those groups reached out to and met with employers where the intermediaries themselves had less of a presence. That approach was particularly noteworthy in the following cases:

- The AFL-CIO Working for America Institute relied on several partners to expand apprenticeship in the hotel and hospitality industry, including the Keystone Development Partnership to engage employers and unions, local workforce boards, American Job Centers, and training providers in Pennsylvania; the Boston Education, Skills, and Training Corporation and UNITE HERE Local 26 in New England; and the Hospitality Training Academy and UNITE HERE Local 11 to reach out to employers in the Los Angeles area.
- To reach employers in the healthcare industry, AHIMA relied on the Hope Street Group to focus on Michigan employers and the Health Care Talent Network to focus on New Jersey employers. In the first contract year, three employers accounted for about half of the apprenticeships under the contract: Fairview Health, a group of about 20 hospitals and specialized clinics, with 128 apprentices; Montana Health, with 62 apprentices in specialty Certified Nursing Assistant programs in dementia care, restorative care, and medication support; and West Michigan Works, with 58 apprentices as Medical Assistants and Surgical Instrument Processing Technicians.

Development of occupational frameworks

After an intermediary identifies committed employers, it helps them develop a program and register occupational frameworks to meet the employers' needs. Occupational frameworks lay out the details of the on-the-job training and related technical instruction needed to complete an apprenticeship. A framework marks an apprentice's progress in one of three ways: it can be time based, competency based, or a hybrid of the two. In time-based programs, apprentices advance once they spend a certain amount of time training in a particular skill. In competency-based programs, apprentices advanced once they demonstrate mastery of certain skills or competencies. Hybrid programs combine elements of time-based and competency-based programs.

Intermediaries developed apprenticeship standards by meeting with employers and SMEs. These meetings often were in person because employers may be reluctant to provide information on their occupations and hiring over the phone. For example, after identifying potential employers, TransPORT called them to walk through registered apprenticeship models but then used in-person meetings to design apprenticeships, including connecting employers with related technical instruction providers and modifying occupational frameworks. TransPORT was the only industry intermediary based in a community college (South Central Louisiana Technical College), and it leveraged this relationship to promote its programs with other colleges, register them as sponsors, and enlist them to help in aligning

their college curricula to be appropriate for apprenticeships. Colleges can be registered as sponsors for employers that are interested in an apprenticeship program but wary of sponsoring it themselves.

In some cases, the intermediaries became apprenticeship sponsors, allowing employers to sign on to existing, registered "group standards" without going through the registration process on their own. Group standards lay out the same program details and requirements as an individual employer's apprenticeship standards, but in a group program, employers can sign on to standards without developing or registering a new program. H-CAP and Apprenti were the registered sponsors of their programs.

Several intermediaries devoted considerable time and effort to gaining approval for new or amended occupational frameworks as registered apprenticeships. Registrations, in general, are specific to an individual employer or sponsor; in some cases, therefore, multiple intermediaries developed frameworks for the same occupation. Examples of work to develop and gain approval for frameworks included the following:

- FASTPORT's efforts to research in-demand occupational areas and to develop and register occupational frameworks allowed it to generate many more apprenticeships than the other industry intermediaries generated. FASTPORT staff noted that "the modern workplace has evolved" and that occupational standards for older occupations, such as Dispatcher, need to be rewritten to reflect the new realities of jobs like Fleet Manager.
- H-CAP made it easier for employers to register standards by serving as the sponsor for many of them. In many cases, H-CAP also helped employers with "dual registration," or registering under national standards and with state apprenticeship agencies. Some employers were interested in dual registration because it provides access to state funds. States were also frequently interested in encouraging dual registration to increase their registration rates for their State Apprenticeship Expansion (SAE) grants.[8]
- JFF reported that employers often broaden their interest in new occupations over time. One employer started with a CNC programmer occupation and then expressed interest in moving into engineering and IT, which required JFF to develop new occupational frameworks. Employers that sponsor apprenticeships can provide opportunities for innovative new occupational frameworks because their prior experience with apprenticeship facilitates creative new applications of the training model.
- NABTU revised existing standards, including standards for Painter and Laborer, because there was greater need in the construction industry for updating existing occupations than registering new occupations.
- NRAEF developed competency frameworks for Restaurant Manager apprenticeships and worked with the American Hotel and Lodging Association to create a Lodging Manager apprenticeship.[9] Its goal was to make these national standards. NRAEF was also working to get approval for Line Cook standards.
- In the first year of its contract, TransPORT worked with 68 employers to develop or modify 11 frameworks and register more than 500 apprentices. Most employers sponsored or partnered with automotive repair and industrial maintenance programs, although several employers were based in

[8] SAE grants were first awarded by DOL to states in 2016 to support innovative work to expand registered apprenticeship. Mathematica and its partners are currently conducting additional evaluation research on the 37 SAE grantees.

[9] NRAEF staff identified a need for a Master Brewer apprenticeship; they did not try to create one, however, because they could not attract enough employer interest.

ports and sponsored or partnered with maritime occupations. In the following two years of the contract, TransPORT noticed an increased demand for port managers and supervisors, so it developed those programs. TransPORT has found that competency-based programs are more difficult to sell to employers, who are less familiar with them, although TransPORT acknowledged that promotion from DOL has made it easier to register competency-based programs.

- Apprenti worked with a few employers to produce at least seven occupational frameworks in the IT field, including Software Developer, IT Support Professional, and Cybersecurity Analyst.

Table 2 lists the occupations that have been registered or are in the process of registration through the intermediary contracts. Many frameworks developed through those contracts have been hybrid frameworks, although some contractors have worked on purely competency-based apprenticeships. Nearly all intermediaries have played a significant role in creating work process schedules, which list the competencies to be learned for an occupation and the hours devoted to each competency.

Challenges and lessons

Several industry intermediaries recognized the challenge of stimulating apprenticeships in nontraditional occupations. Intermediaries must identify potential employers, help define and develop new occupational standards, and register their own programs as sponsors or help companies through the registration process. In the two rounds of interviews, the industry intermediaries relayed three challenges and related lessons: (1) delays in registration, (2) delays in approval for new standards, and (3) occupational silos in apprenticeship expansion.

Delays in program registration. During both rounds of interviews, most intermediaries mentioned delays in registering programs at both the federal and state levels. They noted that registering programs and apprentices is time intensive and said it was frustrating when employers that were ready to start a program had to wait six months for approval. One intermediary with experience in creating occupational frameworks in a particular industry and helping employers move though the registration process nevertheless reported significant delays in registering programs at both the federal and state levels. Another intermediary reported encountering obstacles in state registration procedures, as well as a delay in becoming an eligible training provider.

A few intermediaries reported managing to navigate the registration process more smoothly. For example, intermediaries that opted to become apprenticeship sponsors were able to simplify the process somewhat for employers. Traditionally, joint union-management organizations have served as sponsors with many employer signatories to an apprenticeship program, and this model is emerging for other types of intermediaries. One intermediary stimulated many apprenticeships and reported few problems, perhaps because it worked with OA to register national programs and did not have to work with multiple state apprenticeship agencies. Another contractor was positive about the role of a state agency that it worked with in approving applications for registration, although this intermediary still described having to work to familiarize state apprenticeship staff with nontraditional industries and occupations.

Table 2. Occupational programs registered or in the process of registration or development

Industry intermediary	Occupations registered, in the process of being registered, or in development but not submitted for registration
AFL-CIO Working for America Institute	Industrial Maintenance Technician, Chef de Partie, Room Attendant
AHIMA Foundation	Professional Coder, Certified Drug and Alcohol Counselor, Certified Surgical Instrument Technician
FASTPORT, Inc.	Professional Truck Driver, Diesel Mechanic, Freight Broker, Transportation Manager Coordinator, Auto Mechanic, Industrial Truck Mechanic, Logistics Engineer, Delivery Installation Specialist, Driver Manager, Motor Coach, HVAC, Cybersecurity
Healthcare Career Advancement Program (H-CAP), Inc.	Medical Assistant, Emergency Medical Technician, Medical Coder, Community Health Care Worker, Home Care Aide, Certified Nursing Assistant, Central Sterile Positions, Surgery Technician, Patient Care Technician, Behavioral Health, Assistant Case Manager, Interventional Radiologist, Licensed Practical Nurse, Associate Teacher (Early Childhood Education)
Jobs for the Future, Inc. (JFF)	Industrial Manufacturing Technician, CNC Machine Operator, Telecommunications Tower Technician, Wireless Technician, Telecommunications Tower Antenna and Line Lead, Line Foreman, Telecommunications Tower Construction Lead, Telecommunications Tower Construction Line Foreman
National Institute for Metalworking Skills, Inc. (NIMS)	Machinist, CNC Programmer, Welder, Mechatronics, Industrial Maintenance, and other manufacturing occupations
National Restaurant Association Educational Foundation (NRAEF)	Restaurant Manager, Lodging Manager, Line Cook, Building Engineer, and Building Maintenance
North America's Building Trades Unions (NABTU)	(Because apprenticeship is well established in the building trades, NABTU meets new occupation targets by revising existing standards—as of the 2020 interview, those for Painter and Laborer)
South Central Louisiana Technical College/TransPORT	Industrial Manufacturing Technician, Marine Mechanic, Marine Electrician, Welder, Mechatronics Technician, Industrial Engineer, Material Logistics Technician, Automotive Specialty Technician, Automotive Body Repairer, Diesel Mechanic, Transportation Clerk, Crane Operator, Logistics Technician, Logistics Engineer, Chassis Repair, Freight Forwarder, Crane Engineering Superintendent, Equipment Services Superintendent, Chassis and Container Repair
Washington Technology Industry Association/Apprenti	Database Administrator, Project Manager, Network Security Administrator, Software Developer, Web Developer, Windows Systems Administrator, Linux Systems Administrator, Cloud Support Specialist, Data Center Technician, IT Business Analyst, Cloud Administrator

Source: Interviews with industry intermediaries, 2017 and 2020. Listed occupations reflect interview responses only and may not capture all occupations registered under the contract.

Delays in development and approval of new occupational standards. Another reported obstacle was that developing new occupational standards and getting them approved was time-consuming. Even after OA had reviewed drafts of a new program's standards, it took many weeks to approve the new sponsor. One intermediary reported that they also had to navigate the inconsistent guidance they received from state and regional DOL representative and OA staff in Washington, DC on what was needed to gain approval.

Many intermediaries faced delays in registering apprentices throughout their contracts because of their early focus on developing occupational frameworks. Apprenti, for example, had developed and registered 11 IT occupations and was registering one more at the time of the 2017 interview. Those efforts could

have set the stage for a large-scale expansion of apprenticeships among employers. However, by the time of the interview, Apprenti had stimulated only a modest number of apprenticeships because it had devoted much of its time and resources in the first contract year to developing standards. By the beginning of the fourth contract year, Apprenti had registered almost 1,000 apprentices, indicating progress since 2017. Other intermediaries likewise found that delays in developing and registering new standards were less of a barrier to expanding apprenticeship in later years of the contract, after the intermediaries' flagship occupational programs had been approved. Intermediaries that continued to report registration problems at the time of the 2020 follow-up interviews were more likely to be registering standards for individual employers' programs, as discussed above, than signing employers on to group programs or national standards.

Interview respondents identified two potential ways to speed up the process of outreach, program design, and registration. One was for the intermediary to become a sponsor, thereby allowing employers to sign on to the sponsor's program and begin hiring apprentices with little delay. The second was to develop and promote pre-approved national occupational frameworks that individual employers can adopt without the need for additional program development.

Occupational silos in apprenticeship expansion. FASTPORT cautioned that many efforts to expand apprenticeship are focused on occupations narrowly associated with a specific industry, rather than occupations that cut across multiple industries. FASTPORT noted that the transportation companies it was engaging needed workers outside of traditional transportation-related occupations—for example, refrigerated freight companies needed HVAC technicians, and JBS Transport, the largest transporter of parcel freight, required IT and cybersecurity workers. FASTPORT found DOL to be flexible in letting it serve all of these occupational needs for transportation companies.

One intermediary cautioned that expansion efforts that are too focused on a particular sector could fail to serve employers' full workforce needs. It noted that this reality and the limited occupational expertise of an SME or an apprenticeship training representative could present barriers to apprenticeship expansion. Because employers often think of apprenticeships as a way to build up skills for the full range of jobs required for operations, siloed expansion efforts result in lost opportunities for scaling apprenticeship.

National equity partners

Developing opportunity partnerships to promote diversity and inclusion

Unlike the industry intermediaries, whose mandate was to start registered apprenticeship programs and recruit apprentices, the four national equity partners were asked to develop "opportunity partnerships" that increased gender, racial, ethnic, and other types of diversity and inclusion in apprenticeship. National equity partners reported on the apprenticeships generated as a result of their activities but unlike the industry intermediaries they did not have apprentice targets that they had to meet. These partnerships could provide technical assistance or other guidance to help employers or program sponsors improve their diversity and inclusion, or they could increase access to apprenticeship for target populations.

All four equity partners focused on serving women and people of color. Two partners had a special charge to serve additional target populations: JFF served disconnected youth, and North Carolina Agricultural and Technical State University (NCAT) served people with disabilities. JFF's and NCAT's equity partner

contracts ended in 2017; after that, no equity partners had a primary mission of supporting either of those groups.[10]

Although equity partners were broadly tasked with promoting diversity and inclusion three of the four partners focused on a relatively narrow set of industries or occupations. JFF, the one exception, focused on manufacturing, hospitality, and construction in its year as an equity partner. A sectoral focus helped the other three equity partners address long-standing disparities in specific occupations:

- Chicago Women in Trades (CWIT) focused on the building trades, in which it has a long history of addressing gender disparities through Women in Apprenticeship and Nontraditional Occupations grants and other efforts. CWIT staff referred to the building trades as their "first home" but noted that they have also been active in manufacturing and transportation.
- The National Urban League focused on six telecommunications occupations: Tower Technician, Wireless Technician, Antenna and Line Lead, Antenna and Line Foreman, Construction Lead, and Construction Foreman.
- During its time as an equity partner, NCAT focused on the IT field, including the development of a Mainframe Computer Programmer apprenticeship program.

As required, the equity partners generated new opportunity partnerships that would allow target populations to participate in apprenticeship. Table 3 lists the national and regional opportunity partnerships developed under the contracts. Opportunity partnerships included other nonprofits, employers, and colleges. Two opportunity partnerships included industry intermediaries: CWIT established a partnership with NABTU, and JFF partnered with FASTPORT. Every equity partner worked with an employer, an employer organization, or (in the case of CWIT) a labor organization involved in apprenticeship as one of their national partners. Every equity partner except CWIT partnered with either a community college or a Historically Black College or University (HBCU) as a regional opportunity partner; NCAT itself is an HBCU.

Although equity partners reported a wide range of partnerships, some were more active than others. The most active partnerships typically were with organizations that had national scope, had a particularly innovative approach to registered apprenticeship, or provided specific organizational capacity. For example:

- CWIT's most active partnerships were with NABTU and Iron Workers International (IWI). Both partners had a national reach, and IWI in particular was involved in a number of innovative activities, including a pre-apprenticeship program and policy changes that broadened accommodations for maternity and pregnancy for ironworkers.
- JFF's most active partnerships under its equity contract involved associations and organizations. Those included the Community College Workforce Consortium and the National Association of Workforce Boards, both of which helped JFF provide technical assistance to other partners.
- The National Urban League's most active partnerships were with the Wireless Infrastructure Association and the Multicultural Media, Telecom and Internet Council, both of which provided a network of employers and other partners for outreach.

[10] In its 2020 interview for its industry intermediary contract, JFF shared that it was continuing its equity work with other funding.

- One of NCAT's most active partners was IBM, which worked with NCAT to establish a Mainframe Computer Programmer apprenticeship program.

Table 3. Opportunity partnerships established by equity partners

Equity partner	National partnerships	Regional partnerships
Chicago Women in Trades (CWIT)	Finishing Trades Institute International, International Training Institute of the Sheet Metal Industry, International Masonry Institute, Ironworkers National Training Cooperative, and NABTU	Chicago Regional District Council of Carpenters Apprenticeship and Training Program
Jobs for the Future (JFF)	Hilton Worldwide, CVS Health, The Hartford, National Association of Workforce Boards, Community College Workforce Consortium, Opportunity Youth Incentive Fund, Upwardly Global, and FASTPORT	Jewish Employment Vocational Service, Philadelphia Youth Network, Rebuild Philadelphia, District 1199c Training and Upgrading Fund, Philadelphia Works, IT-oLogy, Harper College, THRIVE, Cook County Workforce Board, Chicago Jobs Council, Chicago Federation of Labor, United Way, Chicagoland Workforce Funders Alliance, Long Beach City College, Alliance for Children's Rights, Los Angeles Chamber of Commerce, Lone Star College, and Gulf Coast Workforce Board/Workforce Solutions
National Urban League	Multicultural Media, Telecom and Internet Council	Urban League affiliates (Houston Area, Chicago, Metropolitan Seattle, Rochester, Greater Pittsburgh, Central Carolinas, Hampton Roads), Centerline Solutions, Mercury Communications & Construction, Inc., Midwest Underground Technology, Inc., Novation Enterprises, Vertical Limit, Hightower Communications, Inc., Lee Antenna & Line Service, Inc., Tri-State Tower, Enertech, TowerMRL, Verticom, Vinculums, Deep South Communications, Rio Steel & Tower, and HBCUs (Virginia State University, Bowie State University, University of Maryland Eastern Shore, Howard University, University of the District of Columbia, Morgan State University, Coppin State University, Clark Atlanta University, Morehouse College, and Spelman College)
North Carolina Agricultural and Technical State University (NCAT)	IBM, Share, Mobile Collaborative Education Consulting, VetsInTech, Open Mainframe Project, Indiana University Minority STEM Institute, Mentor Services, and Cisco	BB&T Corp., North Carolina Works, Tennessee State University, St. Petersburg College, Shreveport LA NAACP, and Bits and Pieces

Source: Interviews with equity partners, 2017 and 2020.

Partnerships with organizations embedded in specific industries played an especially important role in the National Urban League's and NCAT's contracts. The National Urban League initially relied on the Wireless Infrastructure Association to contact member employers directly, because the National Urban League itself did not have a lot of experience in that industry. By the follow-up interview conducted in 2020, the National Urban League reported shifting its focus to developing its partnership with the Multicultural Media, Telecom and Internet Council, a national telecommunications association that helped the league recruit young adults from HBCUs and minority-serving institutions. (The league also partnered with a variety of public agencies, although these partnerships were usually formed by local affiliates doing equity contract work rather than the national organization.) Similarly, NCAT had a strong partnership with IBM, which motivated its focus on mainframe apprenticeships. Staff at NCAT noted that

IBM had been involved in DOL's efforts to expand apprenticeship into IT even before the industry intermediary and equity partner contracts and was instrumental in developing NCAT's approach to the contract.

By contrast, the other two equity partners had their own expertise, so they relied less on partnerships to provide the industry experience and competence that a successful intermediary needed. CWIT has long worked to improve equity in the construction industry, and JFF has had extensive recent experience promoting apprenticeship and operating independently as an intermediary.

Because the equity partners did not have to meet specific targets for registered apprenticeships, only two tracked that information, and both found it difficult to quantify the results of their efforts. CWIT reported in 2017 that its outreach efforts in the first year of its contract had led 678 women to enter apprenticeships and benefited 378 apprenticeship programs. In 2020, however, CWIT reported that estimating the number of women served under the contract had become more difficult. Although CWIT was able to confirm that approximately 1,100 women had entered apprenticeships supported by its contract activities, it had difficulty extracting data for many states. The National Urban League reported 743 apprenticeship agreements in 2017, including with 14 employers that registered apprenticeship programs with the help of the Wireless Infrastructure Association. By the third year of the contract, the league had significantly expanded its pre-apprenticeship activities, reporting 119 apprentices and 630 pre-apprentices. Like CWIT, the National Urban League indicated difficulties quantifying all the apprentices who were supported by its activities and outreach to sponsors. Apprentices served under the contract are tracked and reported to DOL only if they go through intake and receive services directly from a National Urban League affiliate, but other apprentices could have been affected by other grant activities.

Employer engagement

The equity partners' role in engaging employers was fundamentally different from that of the industry partners. Instead of simply increasing the number of apprentices in an industry, the equity partners focused on assisting employers in making apprenticeships more inclusive and opening opportunities to target populations. Those populations included people of color, people with disabilities, and disconnected youth, all of whom have faced barriers to success in apprenticeships, and women, whose participation in apprenticeship has lagged because of its historical concentration in the building trades (Kuehn 2017). Equity partners' activities included helping employers identify new diverse recruitment sources, connecting them to community-based organizations that provided supportive services, and helping them develop affirmative action plans.

Several equity partners suggested that it was helpful to approach the topic of diversity and inclusion in apprenticeship indirectly, by starting the conversation with the broader benefits of registered apprenticeship.[11] That approach highlighted the benefits of diversity and inclusion for target populations rather than the penalties that employers might face if they did not meet their equal employment obligations.[12] One partner noted that if employers were immediately confronted with affirmative action

[11] Since 1978, federal regulations applicable to apprenticeship have prohibited discrimination in recruitment, selection, placement, pay, hours of work, or job assignment on the basis of race, color, religion, national origin, and sex. In 2016, those protections were extended to prevent discrimination on the basis of disability status, age, sexual orientation, or genetic information.

[12] Apprenticeship sponsors and employers who violate equal employment regulations and who fail to correct the violation can be deregistered.

plan requirements or references to DOL's interest in expanding diversity, they might feel nervous about proceeding without more substantial input from their human resources departments. The equity contractors' goal was to help employers and other sponsors feel confident—not nervous—about proceeding by ensuring that they understood their obligations in developing apprenticeship programs.

In general, the equity partners were not involved in creating standards for new occupations, but they were aware of the opportunities inherent in growing apprenticeship in nontraditional occupations. One equity partner noted that building attentiveness to diversity and inclusion into the apprenticeships from the beginning offers the opportunity for much stronger outcomes than promoting diversity in occupations with a long history of apprenticeship.

Developing case studies to promote diversity and inclusion in apprenticeship

Equity partners developed case studies and marketing materials to help employers promote diversity and inclusion in their apprenticeship programs. Each equity partner developed two types of case studies: (1) studies highlighting the role of pre-apprenticeships in preparing underrepresented populations and (2) studies highlighting successful strategies of national and regional opportunity partners.

The case studies on pre-apprenticeships frequently highlighted the experiences of specific employer partners or programs, such as CVS Health (JFF and National Urban League)[13], champions for NCAT's LEAD-IT program, and Vertical Limit (National Urban League). Topics covered in the case studies on successful strategies varied across contractors. For example, the National Urban League produced a case study that provided technical guidance on affirmative action plans that conform to equal employment regulations for apprenticeship.[14,15] By contrast, JFF's and NCAT's case studies provided talking points for engaging employers on diversity and inclusion.

Another approach was to produce case studies and other resources that reviewed successful organizational models for expanding apprenticeship for a subpopulation or industry, including experiences with Women's Committees (CWIT) and the Multicultural Media, Telecom and Internet Council (National Urban League). In some cases, these resources were 1- or 2-page flyers that directed potential apprentices to contractors or other service providers that could help them access apprenticeships or navigate difficulties in their training. Longer case studies (up to 40 pages) targeted organizations that might want to serve as intermediaries but were not sure how to structure their efforts most effectively; those case studies provided details on how other organizations had been successful. For example, CWIT documented how Women's Committees had helped (1) identify and promote policies that would improve women's retention in apprenticeship programs and (2) advance women into leadership positions in the Joint Apprenticeship Training Committee. Those models were shared with other organizations to help promote women in the trades and also could be adapted to promote other underrepresented populations.

[13] The case study can be found here: https://www.jff.org/resources/pre-apprenticeship-partnerships-cvs-health-employers-perspective/
[14] Equal Employment Opportunity in Apprenticeship and Training, 29 C.F.R. § 30.
[15] The case study can be found here: http://uajp.iamempowered.com/download/NUL%20Diversity%20and%20Inclusion%20in%20Registered%20Apprenticeship%20Case%20Study.pdf.

Cooperation among industry intermediaries, equity partners, and states

Some industry intermediaries and equity partners mentioned working with one another or with state governments, either to diversify apprenticeship in a particular industry or to provide equity partners with critical industry and employer contacts. Although an industry contractor, NABTU's pre-apprenticeship program was focused on increasing diversity in the building trades. Approximately 80 percent of participants who completed the program were people of color, and 20 percent were women. The National Urban League and CWIT, both equity partners, were identified as key partners in NABTU's pre-apprenticeship work. Both of those organizations helped NABTU assemble local partners that could assist with recruitment, instruction, and supportive services in new pre-apprenticeship programs.

In addition to its work with NABTU, the National Urban League recently developed a partnership with TransPORT and JFF. Both of those partnerships were still in development at the time of the 2020 interviews, but the joint work was expected to focus on apprentice recruitment and public education on the value of apprenticeship. The National Urban League's local affiliates were well placed to identify and partner with new recruitment sources in their communities.

Industry intermediaries and equity partners also reported partnering with states on SAE grant activities. For example, TransPORT reported that it worked with Kentucky on its SAE grant activities. JFF noted that states have become easier to work with over time as a result of the reorganization and systems investments supported by the SAE grants. However, JFF also suggested that SAE grantees could become more involved in industry intermediaries' activities through joint conferences, webinars, and convenings.

Lessons for expanding and promoting equity in apprenticeship

The interviews with industry intermediaries and equity partners suggested promising practices for expanding apprenticeship. For the industry intermediaries, those included the following:

- **Using broad-based occupational frameworks and national standards.** Our study findings suggest that for most intermediaries, efforts may be best spent promoting the rationale for apprenticeships to employers, with less time dedicated to developing standards and the registration process. Having broad-based and pre-approved occupational frameworks for apprenticeships would allow for reallocating time in this way. For many intermediaries, the time spent developing frameworks was largely concentrated in the first contract year, which meant they could focus on selling apprenticeships in subsequent years.
- **Increasing the expertise of employer-outreach staff.** Training staff who approach employers in one-to-one meetings about how best to sell employers on apprenticeship programs appears to generate greater engagement from employers. One intermediary stimulated many new apprenticeships after hiring a consultant with extensive expertise in making the case to employers. Another successful intermediary relied on staff with long-term knowledge of the industry, as well as how to organize apprenticeships for employers.
- **Building pre-apprenticeship pipelines.** NRAEF and NABTU (industry intermediaries), in partnership with CWIT and the National Urban League (equity partners), found that pre-apprenticeship pipelines helped to scale apprenticeship for the registered programs with which they worked. They also indicated that pre-apprenticeship helps improve access to apprenticeship for previously underrepresented populations, thereby improving equity in apprenticeship.

The suggestions listed above also apply to organizations pursuing these equity goals in the context of a particular industry. In addition, the equity partners highlighted the potential benefits of creating opportunities for target populations and expanding employers' traditional recruiting pools. As one equity partner noted, an important step in expanding diversity is to market apprenticeship opportunities in the communities where underrepresented populations live and the schools where they study.

Discussion and conclusions

DOL's industry intermediary and equity partner contracts are an important component of its broader portfolio of investments in expanding apprenticeship. Based on the interviews conducted, these contracts provide examples of the role that intermediary organizations can play in the U.S. apprenticeship system. Central to using industry intermediaries to stimulate apprenticeships, especially in nontraditional industries, is the potential for generating economies of scale. Intermediaries that engage with employers in an industry learn which occupations are most in demand and which can be best filled through apprenticeship. Intermediaries often can play a role in registering new occupations that are relevant to specific industries. Once they have gained familiarity with the skills required in various occupations, intermediaries are well placed to recruit employers to hire and train apprentices (U.S. Department of Labor, Employment and Training Administration, 2016; Kuehn and Jones, 2018).

This study was not designed to assess the cost-effectiveness of intermediaries, but the evidence from the intermediary contracts awarded in 2016, combined with findings from prior research, suggests they may be cost-effective. Although the 2017 and 2020 interviews could not capture what would have happened to apprenticeships in the absence of the contracts, the numbers of apprenticeships reported by the contractors suggest that the cost per added apprentice under the contracts was less than $1,000. (That cost per apprentice is derived from expenditures in the first three contract years and estimates of the number of apprentices registered provided in the interviews. A more precise estimate could be generated from a full cost study and detailed quarterly report data.) Research from Kevin Hollenbeck and Wei-Jang Huang (2016) and Debbie Reed and colleagues (2012) shows net benefits to society of several times that $1,000 figure. Assuming that the net cost to the government per added apprentice is under $1,000, the investments would clearly be cost-effective. This study was not designed to provide an estimate of the net social benefits or cost-effectiveness of the contractors' activities so added research is necessary to document and quantify net social benefits from this approach.

Determining the effectiveness of industry intermediaries and equity partners in meeting their goals is difficult. One reason is labor market differences. Across industries, employers vary in the degree to which they are concerned about the urgency of skill shortages and see apprenticeships as a solution. Still, although some intermediaries were more successful than others in overcoming challenges, nearly all stimulated enough new apprenticeships and new commitments to meet their proposed targets. In selling apprenticeships, successful intermediaries relied heavily on industry convenings and one-on-one meetings. In some cases, intermediaries contracted out to experienced people to conduct the one-on-one meetings. In the case of the equity partners, some had prior experience in apprenticeships, whereas others had to build their expertise and partnerships.

By the end of the third year of the four-year contract period, the industry intermediaries reported contributing significantly to the number of new apprentices in the United States and to widening the occupational range of apprenticeships by developing new occupational standards. Moreover, these data suggest that the initiative has been cost-effective in terms of a low cost per added apprentice. At the same time, the equity partners reported connecting employers and sponsors with organizations and resources to

widen access to apprenticeships in order to have more diversity and inclusiveness for underrepresented populations. Scaling these efforts to reach a significant share of employers remains a major challenge, but the progress so far appears positive.

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